

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMCAST CABLE COMMUNICATIONS, LLC,
Petitioner,

v.

ROVI GUIDES, INC.,
Patent Owner.

Case IPR2017-01148
Case IPR2017-01149
Case IPR2017-01150
Patent 6,418,556 B1

Before KARL D. EASTHOM, BARBARA A. BENOIT, and
SUSAN L. C. MITCHELL, *Administrative Patent Judges*.

EASTHOM, *Administrative Patent Judge*.

DECISION
Final Written Decision
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

These *inter partes* reviews, IPR2017-01148 (“48IPR”), IPR2017-01149 (“49IPR”), and IPR2017-01150 (“50IPR”), instituted pursuant to 35 U.S.C. § 314, each review challenges to the patentability of claims 5–10, 15, 17, 18, 29, 31, 32, 34–38, and 41–48 (the “challenged claims”) of U.S. Patent No. 6,418,556 B1 (the “’556 patent”), owned by Rovi Guides, Inc. (“Patent Owner”).

We have jurisdiction under 35 U.S.C. § 6. This single Final Written Decision for the three cases, 48IPR, 49IPR, and 50IPR, issues pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. This Final Written Decision issues concurrently with final written decisions in IPR2017-01144, IPR2017-01145, IPR2017-01146, IPR2017-01147, and IPR2017-01151, which collectively challenge the patentability of claims 1–4, 6, 7, 10–14, 16, 18–28, 30, 33, and 35–40 of the ’556 patent.

For the reasons discussed herein, Petitioner has shown by a preponderance of the evidence in each case that the challenged claims are unpatentable.

A. Procedural History

Comcast Cable Communications, LLC (“Petitioner”) filed Petitions for *inter partes* review of the challenged claims in each of the three Petitions. 48IPR, Paper 2 (“48Pet.” or “48Petition”); 49IPR, Paper 2 (“49Pet.” or “49Petition”); 50IPR, Paper 2 (“50Pet.” or “50Petition”). Patent Owner filed a Preliminary Response in each case. 48IPR, Paper 6 (“48Prelim. Resp.” or “48Preliminary Response”); 49IPR, Paper 6

IPR2017-01148, IPR2017-01149, IPR2017-01150

Patent 6,418,556 B1

(“49Prelim. Resp.” or “49Preliminary Response”); 50IPR, Paper 6

(“50Prelim. Resp.” or “50Preliminary Response”).

In each case, subsequent to the Institution Decision (Paper 8, (“48Inst. Dec.” or “48Institution Decision,” “49Inst. Dec.” or “49Institution Decision,” and “50Inst. Dec.” or “50Institution Decision”)) following Patent Owner’s Preliminary Response, by Order of the panel (Paper 10), Patent Owner filed a single Response (48IPR, Paper 18; 49IPR, Paper 18; 50IPR, Paper 19 (collectively, “PO Resp.”)), and Petitioner filed a single Reply (48IPR, Paper 22; 49IPR, Paper 22; 50IPR, Paper 23 (collectively, “Reply”)). Thereafter, the parties filed additional briefing to address a claim construction issue arising out of the “ITC Case” identified as a related matter in the next section. An Oral Hearing for the three cases occurred on June 12, 2018. *See, e.g.*, 48IPR, Paper 41 (“Tr.”).

B. Related Matters

Petitioner identifies the following related district court matters involving the ’556 patent: *Rovi Guides, Inc. v. Comcast Corp.*, 2:16-cv-00322 (EDTX), transferred, *Rovi Guides, Inc. v. Comcast Corp.*, 1:16-cv-09826 (SDNY); *Comcast Corp. v. Rovi Corp.*, 16-cv-3852 (SDNY). *See* Pet. 1–2.

Petitioner notes Patent Owner asserted the ’556 patent “against [several] Comcast entities . . . in U.S. International Trade Commission Investigation No. 337-TA-1001, styled *In the Matter of Certain Digital Video Receivers and Hardware and Software Components Thereof* (‘ITC Case’).” *Id.* As noted above, Petitioner filed eight concurrent petitions challenging the ’556 patent: Cases IPR2017-01144, IPR2017-01145, IPR2017-01146, IPR2017-01147, IPR2017-01148, IPR2017-01149, IPR2017-01150, and IPR2017-01151.

C. The '556 Patent

The '556 patent, titled “Electronic Television Program Guide Schedule System and Method,” provides a programming guide having channel surfing and reminder message features. *See* Ex. 1401, [54], 4:8, 12:49–59, Figs. 10–15.¹ The surfing feature “provide[s] the user with current programming information for all programs as the user surfs through the available channels.” Ex. 1401, 4:8–10.

The '556 patent describes “a particular need for a flexible program schedule system that allows a user to view selected broadcast programs on a portion of the screen of the television receiver while simultaneously viewing program schedule information for other channels and/or services on another portion of the screen.” *Id.* at 3:4–9. In general, “[t]he user may navigate through the program schedule system with a remote controller . . . [that] operates on conventional principles of remote control . . . logic . . . , or other suitable user interface.” *Id.* at 8:49–54.

The '556 patent describes a need for “surfing”: “[A] need exists for a program guide which displays current program schedule information for each channel as the user surfs through the available channels.” *Id.* at 2:59–61.

¹ All Exhibit citations beginning with “14” refer to the 48IPR. Petitioner employs the same last two digits for the same Exhibits in each IPR. For example, in the 48IPR, 49IPR, and 50IPR, Petitioner respectively designates the '056 patent as Exhibit 1401, Exhibit 1501, and Exhibit 1601. Unless otherwise stated, where the Exhibit refers to the same document, this Final Written Decision cites to Exhibits of the “14” series. Patent Owner employs a parallel convention. For example, in the 48IPR, 49IPR, and 50IPR, Patent Owner respectively designates the Declaration of Alan Bovik as Exhibit 2406, Exhibit 2506, and Exhibit 2606. (The Declarations contain different but overlapping evidence.)

The '556 describes different modes. Figure 5, reproduced below, illustrates an example of surfing in a “Flip” mode:

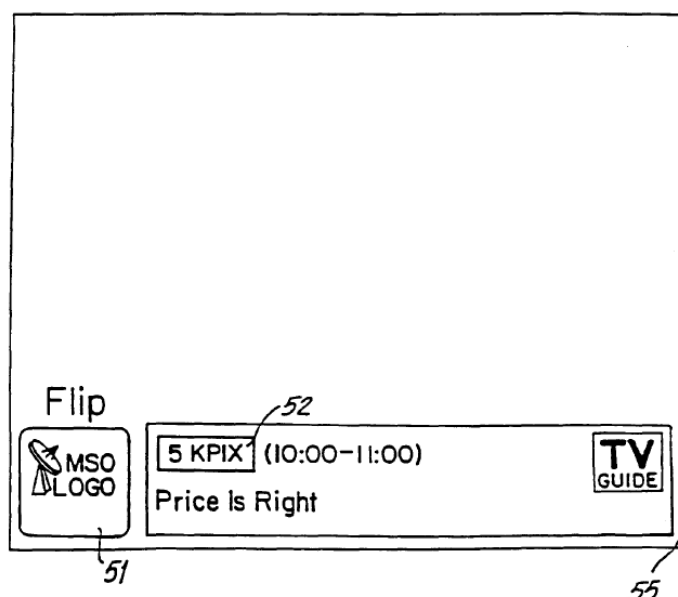


FIG.5

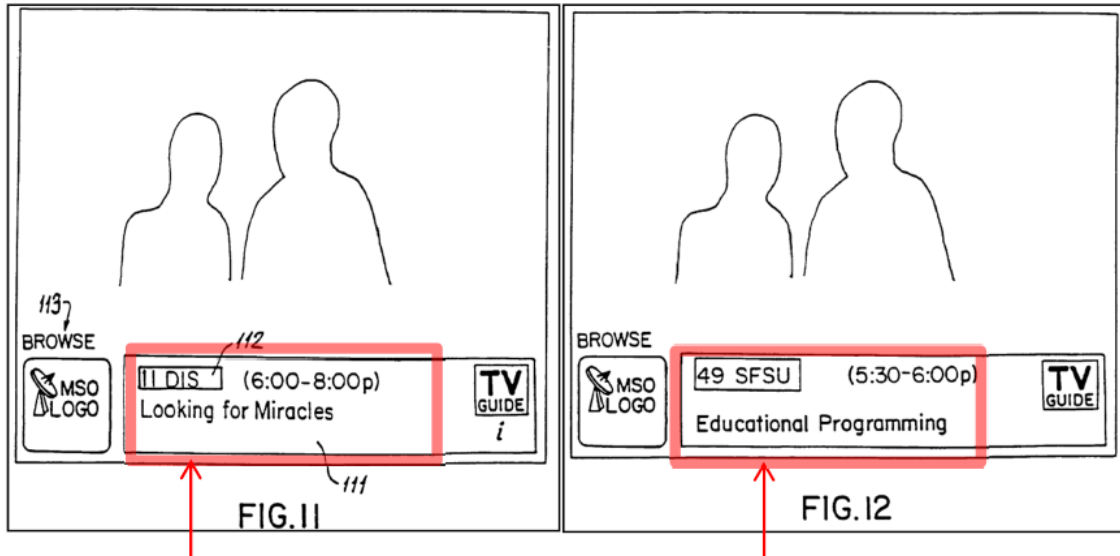
As indicated by Figure 5 above, each time a user changes (i.e., “flips”) channels using remote control device 31, the system provides graphic program information 51 “superimposed in overlaying relationship” with “received program signal 55” corresponding to the currently viewed channel (e.g., channel 52). *See* Ex. 1401, 10:6–14.

In contrast to the Flip mode, in the Browse mode, a user may “scan through program schedule information *for any* channel” overlaying the signal corresponding to the currently viewed program. *See id.* at 11:29–33 (emphasis added). When a user first enters the Browse mode (e.g., by depressing MODE switch 38 on remote controller 31, *see id.* at Fig. 3), like the Flip mode, information about the currently viewed program overlays the television signal. *See id.* at Fig. 11. Subsequently, in the Browse mode, while a user views a television video program on the current channel, remote controller 31 allows the user to view program information about current

programs on a different channel, or a future program on the same or a different channel, with said program information overlaying the currently viewed television video program. *See id.* at 12:35–48, Fig. 12A (showing programing information of a future program (at 8:50 p.m.) overlaying a current television program signal (at 6:48 p.m.)).

The '556 patent generally refers to “other modes” in conjunction with a “highlighted program” associated with a cursor. *See* at 15:41–42. Using the remote controller, each mode provides navigation through channels. “The up/down direction arrow keys 37A allow a user to navigate through the different TV program channels when the program schedule system is in a FLIP or BROWSE mode, as will be fully described below, and also allow the user to navigate through highlighted bars displayed on the TV screen when in a MENU mode.” *Id.* at 9:9–15. In a section titled “Menu Mode,” the '556 patent states “moveable highlighted cursor 185 is used to indicate the currently selected program to the user.” *Id.* at 14:42–44, *see* Figs. 18, 25. In general, “[a]s with other modes, if a user wishes to tune to a highlighted program that is currently airing, he can do so by simply depressing the ENTER key on the remote controller” and for future programs, instead of tuning, exercise a reminder function. *Id.* at 15:41–46 (emphasis added).

Petitioner annotates Figures 11, 12, and 12A to illustrate the Browse mode features. 48Pet. 7–8; 49Pet. 8–9; 50Pet. 7–8. A reproduction of Petitioner’s annotated Figures 11, 12, and 12A follows:



Program information for
 Channel 11 (current program)

Program information for a
 different channel

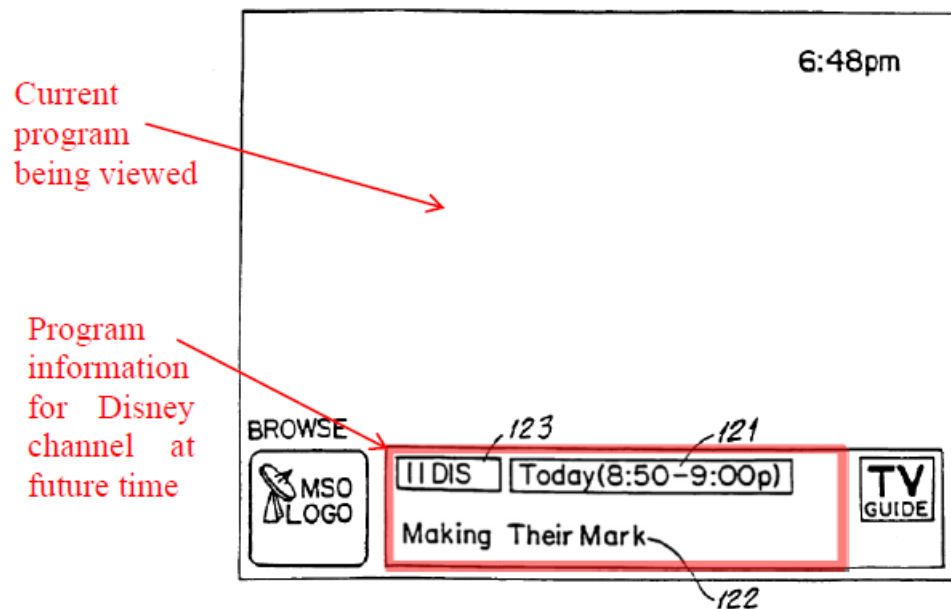


FIG. 12A

As illustrated above in Petitioner's annotated Figures 11, 12, and 12A, in the Browse mode, a user can surf through different types of program information overlaying a currently viewed television program. See 48Pet. 7-8; 49Pet. 8-9; 50Pet. 7-8; Ex. 1401, 12:19-55.

While in the Browse, Menu, or “other modes,” a user can prompt the system to provide a “REMINDER” selection message by pressing a key on a remote control device. Ex. 1401, 12:49–59 (describing “ENTER” remote control key); 15:11–13 (“If the highlighted show [in the Menu mode] is one that will appear at [a] future time, the user is again given the option of setting a REMINDER message.”), 15:41–47 (“other modes”). The system then returns the following reminder selection message, which includes a prompt to press “Enter” to accept a reminder message, as illustrated below in Figure 13:

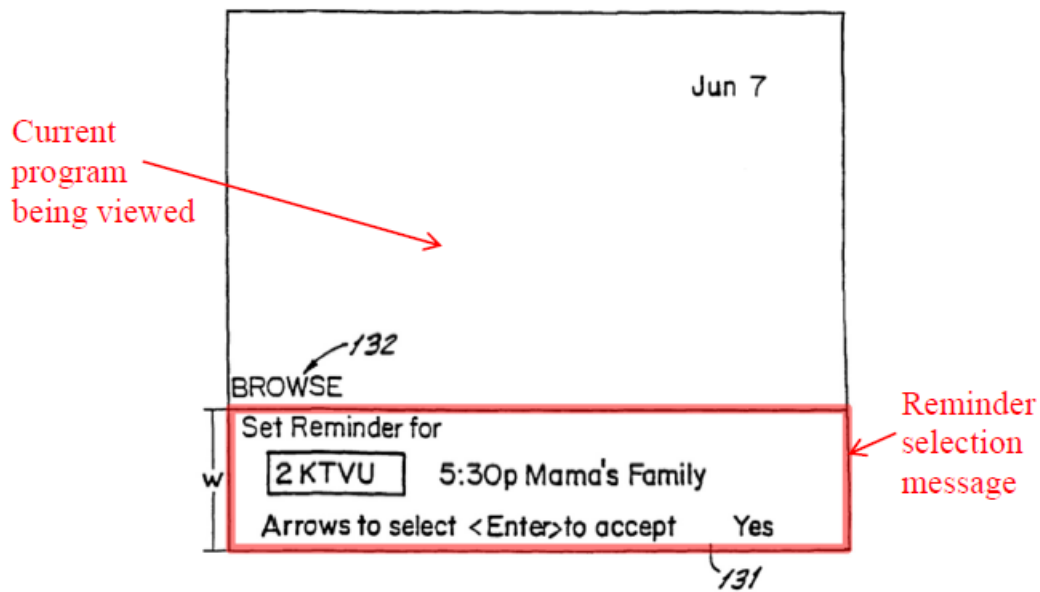


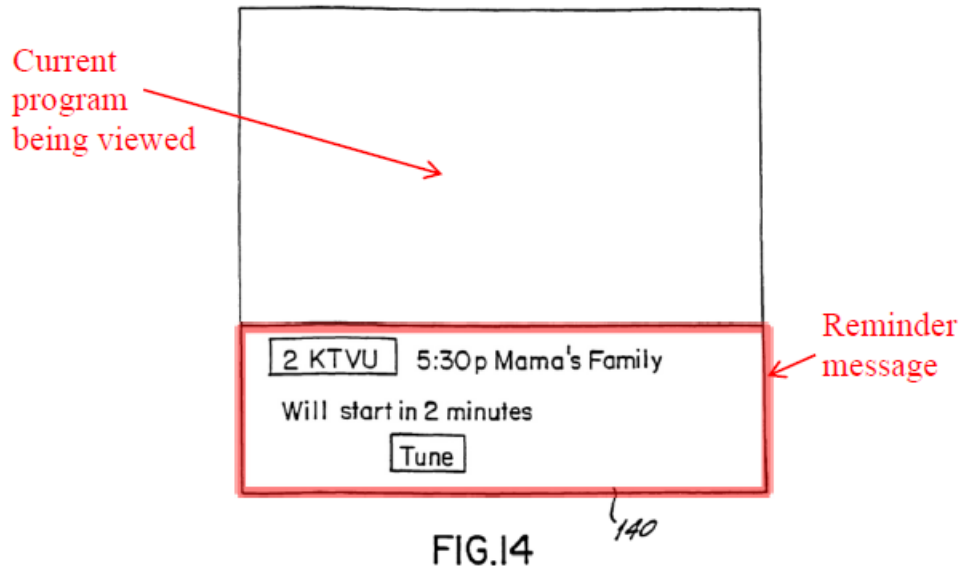
FIG.13

Petitioner’s annotated version of Figure 13, above, depicts a reminder selection message “displayed as a second overlay 131 appearing above the [first] BROWSE overlay 132,” which overlays a currently viewed program. See Ex. 1401, 12:53–59; 48Pet. 9; 49Pet. 9; 50Pet. 9.

So the reminder overlay/selection message (Figure 13) queries the user as to whether he or she desires setting up a reminder message to be displayed (about 5 minutes) prior to a specified future program. Ex 1401,

12:55–65. If the user responds affirmatively, microcontroller 16 will provide a reminder. *Id.* at 12:59–63.

Figure 14, reproduced by Petitioner as annotated below, depicts the resulting reminder message 140:



48Pet. 10; 49Pet. 10; 50Pet. 10. As annotated Figure 14 above represents, the system displays reminder message 140 overlaying a TV signal at a predetermined time (2 minutes) before a start of the user-selected program. Ex. 1401, 12:63–13:3. The reminder message appears while a user may be viewing a television program and without the system being in any particular mode.

D. Illustrative Claims

The Petition challenges independent claims 5, 15, 17, 29, 34, 41, 42, and 43, all of which recite similar subject matter. 48Pet. 11; 49Pet. 11; 50Pet. 12. Claims 5 and 15 illustrate the subject matter of the challenged claims and read as follows:

5. An electronic programming guide for use with a video display for displaying program schedule information for television

programs appearing on a plurality of television channels comprising:

means for receiving television program schedule information for a set of television programs scheduled to appear on said plurality of television channels;

user control means for choosing user control commands, including channel-control and time-control commands, including selection commands, guide channel-control and guide time-control commands, and transmitting signals in response thereto;

[a] data processing means for receiving said signals in response to said user control commands; and

a video display generator adapted to receive video control commands from said data processing means and program schedule information from said receiving means for displaying interactively-selected successive portions of said program schedule information in overlaying relationship with another display signal appearing on said video display;

said data processing means being adapted [b] to control said video display generator with said video control commands in response to said user control commands to display for a predetermined display period each said selected portion of program schedule information in partial overlaying relationship with said another display signal currently appearing on said video display, each said portion displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods or programs for which program schedule information has been received;

said data processing means [c] controlling said video display generator to also selectively display reminder selection messages in at least one mode of operation of said programming guide, for allowing said user to choose selection commands in response to said reminder selection messages for selecting a

reminder associated with a chosen future program, each said selected reminder message also to be displayed on said display at a predetermined time prior to the time of occurrence of each chosen future one of said television programs, said reminder message being displayed in overlaying relationship with another display signal being displayed at said time said reminder message is displayed.

Ex. 1401, 25:25–26:4 (bracketed notation added to correspond to Petitioner’s notation).

15. An electronic programming guide for displaying television schedule information on a video display on which is displayed a display signal, said programming guide comprising:

memory means for storing television program schedule information;

user control means for choosing user control commands, including selection commands, guide channel-control and guide time-control commands, and transmitting signals in response thereto;

data processing means [a] for receiving said signals in response to said user control commands; and

a program schedule display generator coupled to said data processing means and said memory means for displaying, in a partial overlay on said display signal, user-selected portions of said schedule information comprising listing information for at least one program different from said display signal, each said portion of said schedule information being interactively selected by a user and consecutively displayed in response to consecutive user-activated ones of said guide control commands for successively navigating through listing information for sequential time periods or programs for which program schedule information is stored in said memory means;

said data processing means [c] controlling said program schedule display generator to also selectively display reminder

selection messages in at least one mode of operation of said programming guide, for allowing said user to choose selection commands in response to said reminder selection messages for selecting a reminder associated with a chosen future program, each said selected reminder message also to be displayed on said display at a predetermined time prior to the time of occurrence of each chosen future one of said television programs, said reminder message being displayed in overlaying relationship with another display signal being displayed at said time said reminder message is displayed.

Id. at 28:4–28:43 (bracketed notation added to correspond to Petitioner’s notation).

E. Asserted Grounds of Unpatentability

Across the three Petitions, Petitioner contends that claims 5–10, 15, 17, 18, 29, 31, 32, 34–38, and 41–48 of the ’556 patent are unpatentable under 35 U.S.C. § 103(a) based on Young ’801² (Ex. 1402), Young ’121³ (Ex. 1411), and Strubbe⁴ (Ex. 1410), further in view of either Moro⁵ (Ex. 1403, 48Pet. 11), Reiter⁶ (Ex. 1504, 49Pet. 11), or Remillard⁷ (Ex. 1605, 50Pet. 12). In other words, across the three Petitions, the central difference arises in the challenges because Petitioner applies one of either Moro (48Pet.), Reiter (49Pet.), or Remillard (50Pet.) for teachings related to a partial overlay of information. The Petitions rely on the (first) declaration testimony of Anthony J. Wechselberger (Ex. 1409; Ex. 1509; Ex. 1609).

² Young et al., WO 92/04801 (issued Mar. 19, 1992).

³ Young, U.S. Pat. No. 4,706,121 (issued Nov. 10, 1987).

⁴ Strubbe et al., U.S. Pat. No. 5,047,867 (issued Sept. 10, 1991).

⁵ Moro E.P. Pat. Pub. No. 0444496 A1 (published Sept. 4, 1991).

⁶ Reiter, U.S. Pat. No. 4,751,578 (published June 14, 1988).

⁷ Remillard, U.S. Pat. No. 5,404,393 (issued Apr. 4, 1995, filed Sept. 28, 1992).

IPR2017-01148, IPR2017-01149, IPR2017-01150

Patent 6,418,556 B1

The Response relies on the declaration testimony of Alan C. Bovik (Ex. 2406). The Reply relies on the (second) declaration testimony of Anthony J. Wechselberger (Ex. 1420).

II. DISCUSSION

A. Claim Construction

The Board interprets claims of an unexpired patent using the broadest reasonable construction in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b) (2016); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–45 (2016) (upholding the use of broadest reasonable construction standard in *inter partes* review). Consistent with the broadest reasonable construction, claim terms presumptively carry their ordinary and customary meaning as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). An inventor may provide a meaning for a term that is different from its ordinary meaning by defining the term in the specification with “reasonable clarity, deliberateness, and precision.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). In addition, “[a] construction that is unreasonably broad and which does not reasonably reflect the plain language and disclosure will not pass muster.” *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1298 (Fed. Cir. 2015) (internal quotation marks and citation omitted), *overruled on other grounds by Aqua Prods., Inc. v. Matal*, 872 F.3d 1290 (Fed. Cir. 2017) (en banc).

The Institution Decisions analyze certain phrases recited by the challenged claims that Petitioner asserted fell under 35 U.S.C. § 112 ¶ 6. 48Inst. Dec. 13–35; 49Inst. Dec. 10–16; 50Inst. Dec. 10–15. Neither party contests our initial claim constructions in a manner that requires further

analysis. See PO Resp. 15–16 (characterizing the construction of one term as “unduly narrow,” but asserting “for purposes of the present proceedings . . . resolution of these [claim construction] disputes is unnecessary”); Reply 7–15 (providing claim constructions for other terms discussed further below). The parties also do not point us to arguments or evidence that necessitates a further analysis of the prior claim constructions.

Accordingly, after a further review of the record, we incorporate by reference and adopt our analysis and conclusions in our Institution Decision regarding the following claim terms. 48Inst. Dec. 11–35; 49Inst. Dec. 10–16 (relying on analysis set forth in the institution decision in the 48IPR); 50Inst. Dec. 10–15 (relying on analysis set forth in the institution decision in the 48IPR).

Term	Construction	Analysis/Citation
“user control means for choosing user control commands . . . and transmitting signals in response thereto”	means-plus-function limitation; corresponding structure is a remote controller with conventional guide and selection control (Ex. 1401, 8:49–9:6; Figs. 1, 3)	48Inst. Dec. 14–15; 49Inst. Dec. 11–12; 50Inst. Dec. 11–12

Term	Construction	Analysis/Citation
a video display generator . . . for displaying” (claims 5 and 41–43), “a program schedule display generator . . . for displaying” (claims 15, 17, and 29), and “an event schedule display generator . . . for displaying” (claim 34)	under a first alternative, denotes a class of analog hardware devices that overlay text information onto a video signal; i.e., not a means-plus-function limitation under this first alternative set forth in the Institution Decisions, which the parties do not dispute	48Inst. Dec. 15–22; 49Inst. Dec. 12; 50Inst. Dec. 12
“data processing means”	means-plus-function limitation; corresponding structure is a microcontroller or processor with logic structure (as described at Ex. 1401, 8:3–12, 8:49–60, 10:23–24, 10:43–49, and 12:1–7) for receiving signals responsive to remote control commands, controlling the video display generator to provide interactive navigation of selected programming guide information overlaying a display signal in response to the remote control commands, being responsive to television tuner commands from a user, and only displaying the partial overlay for a predetermined display period (as required by claim 5)	48Inst. Dec. 22–33; 49Inst. Dec. 12–14; 50Inst. Dec. 12–14

Term	Construction	Analysis/Citation
“memory means” (claim 15)	denotes well-known structure including different forms of memory; not means-plus-function limitation	48Inst. Dec. 33–35; 49Inst. Dec. 14; 50Inst. Dec. 14
“means for receiving television program schedule information”	means-plus-function limitation; corresponding structure is a television receiver, a cable converter box, a data storage device, or a computer, capable of receiving program schedule information (described at Ex. 1401, 6:61–63, 7:11–16, 8:38–42, 8:44–48).	48Inst. Dec. 13; 49Inst. Dec. 11; 50Inst. Dec. 11

1. *“to . . . display reminder selection messages in at least one mode of operation of said programming guide”*

In our Institution Decisions, we also preliminarily construed “at least one mode of operation of said programming guide” (in all independent claims) to define one or more different mode configurations of the data processing means for choosing among reminder selection messages. *See* 48Inst. Dec. 29–32 (noting the specification describes several modes and Patent Owner argued during the ITC Case that the phrase requires no construction or a construction “such that reminder messages may be presented in one or more configurations” (quoting Ex. 2401, 73)); 49Inst. Dec. 15 (referring to the analysis at 48Inst. Dec. 29–32); 50Inst. Dec. 17–18 (referring to the analysis at 48Inst. Dec. 29–32).

Relevant to the claim construction of certain terms as explained further in the next section, nothing restricts the challenged claims to a single mode, such as the Browse mode. *See supra* Section I.C (describing different modes). Rather, the ’556 patent indicates the challenged claims require

support from and encompass combined features from different modes of operation. Each of the challenged claims requires the ability to select reminder messages “in at least one mode,” and requires displaying the reminder messages at “a predetermined time prior to the time of occurrence of each chosen future one of said television programs.” The former phrase “at least one” means one or more, and the latter reminder or alert feature implicates other modes of television watching—i.e., to alert a watcher of an upcoming show in any mode. *See* Ex. 1401, 3:15–17.

In addition, claim 5 recites “a predetermined display period” for “each selected portion of a program schedule information in partial overlaying relationship.” The Browse mode does not include such a feature, but the Flip mode does, further showing at least claim 5 and claims 6–10, 36, and 37 dependent therefrom include various mode features, not just the Browse mode. *See id.* at 10:43–65 (describing removing an overlay after an overlay interval).

During the Oral Hearing, Petitioner conceded the administrative law judge (“ALJ”) in the ITC Case determined the Browse mode limits the claims to that single mode (Tr. 11:22–12:4), but argued that the ITC Case involved “a completely different record than we have here today” (Tr. 20:12–13), and that Patent Owner characterized the Browse mode broadly during prosecution (Tr. 5:23–6:6). Unlike in the ITC Case, both parties disagree with a central basis of the ALJ’s reasoning, as neither party argues

here that the challenged claims require a single-entry program listing feature (of the Browse mode) as discussed further below.⁸

Patent Owner also characterized its claims more broadly in the ITC Case, in direct opposition to what it asserts here, as discussed further below. *See* Ex. 2401, 71 (Patent Owner arguing the Browse mode “‘unduly narrows’ the claim scope”), 68 (Patent Owner arguing “[t]he inventors did not disavow the plain and ordinary scope of ‘one mode of operation of said programming guide’ such that it narrowly covers only a ‘browse mode’ of operation”).

Upon consideration of the full record, including the intrinsic record, the ITC Case, the prosecution history, and evidence and arguments supplied

⁸ The ALJ’s infringement analysis appears to require the Browse mode feature of listing one program at a time (i.e., a single-entry feature, at least for one of the claim phrases—the selecting and displaying phrase discussed next). *See* PO Sur-Reply 2 (citing Ex. 2[4]01, 72 n.33); Ex. 2401, 72 n.33; 99–100. To the extent the ALJ determined the selecting and displaying clauses only find support in a single-entry Browse mode (*see* Ex. 2401, 100–01), we arrive at a different conclusion based on a different record, a different claim construction standard, and refined arguments, all considered with the ITC Case as a backdrop. The record here considers generic passages of the ’556 patent that form part of the intrinsic record to inform claim scope, whereas the ITC Case focuses on the Browse mode section of the ’556 patent. *See* Ex. 2401, 72 (citing the ’556 patent, 11:21–13:14). Also, both parties disagree with the central basis of the ALJ’s reasoning, as neither party argues here that the claims require the single-entry listing feature as discussed further below. (The ALJ in the ITC Case construed “‘one mode of operation of said programming guide’ to mean ‘a simultaneous display or overlay of program schedule information with another video signal with the recited navigation and tuning functions.’” *See* Ex. 2401, 72. The challenged claims recite “*at least one mode*” as a purported limit to the reminder function—i.e., not as a limit to selecting and displaying portions of the overlay display.)

by the parties, for the reasons above and further below, we determine the challenged claims include features from different modes to provide a flexible program system not limited to any single mode for simultaneous viewing of multiple programs in a partial overlay. *See, e.g.*, Ex. 1401, 3:4–9 (“[T]here is a particular need for a flexible program schedule system that allows a user to view selected broadcast programs on a portion of the screen of the television receiver while simultaneously viewing program schedule information for other channels and/or services on another portion of the screen.”).

2. *“for displaying interactively-selected successive portions of said program schedule information in overlaying relationship with another display signal” and*

“each said portion displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods or programs for which program schedule information has been received”

Independent claim 5 recites the above-listed limitations. All the challenged claims recite some form of these limitations (with claim 17 reciting a clause modifying the “navigating” requirement to include adding and deleting at least one program listing). For example, claim 15 recites “each said portion of said schedule information being *interactively selected by a user and consecutively displayed* in response to consecutive user-activated ones of said guide control commands for successively navigating through listing information for sequential time periods or programs.”

Ex. 1401, 28:21–26 (emphasis added). Petitioner provides claim constructions for the above related limitations, referring in short-hand form to the first one recited in claim 5 as the “successive portions” (Reply 8 n.2) limitation and the second one recited in claim 5 as the “consecutively

displayed” (*id.* at 11) limitation. In view of the challenged claims reciting similar terminology, we adopt Petitioner’s convention where appropriate to address arguments, but generally refer to the intertwined limitations in short-hand form as “selected” and “displayed” portions to capture the overlapping subject matter of the challenged claims at issue here.

For example, claim 5 does not recite “consecutively displayed” but claim 15 does, and claim 5 recites “for displaying interactively-selected successive portions” but claim 15 does not. Similar to claim 5, claim 15 recites “each said portion . . . being *interactively selected* . . . and *consecutively displayed* in response to consecutive user-activated . . . guide control commands”—i.e., reciting intertwined *selected* and *displayed* features. All the challenged claims recite similar selected and displayed features as initiated by guide control commands transmitted to a data processing means.

Generally, a data processing means controls a video display generator (“VDG”) to select and display guide portions. See Ex. 1401, Fig. 1 (microcontroller 16 as data processing means and VDG 23). Specifically, claim 5 recites a “data processing means” controlling a “video display generator” to “*display . . . each said selected portion of program schedule information in partial overlaying relationship,*” which refers back to the “video display generator . . . for *displaying interactively-selected* successive portions of said program information.” See Ex. 1401, 25:39–58 (emphasis added). Similar remarks apply to all of the challenged claims.

Petitioner contends “under the broadest reasonable interpretation, ‘successive portions’ can refer to portions that are either successive in time (as shown in Ex-1401, FIGs. 11–12A) or spatially successive (as shown in FIGs. 18 and 25; see also Ex-1401, 14:1–27, explaining cursor movement).”

Reply 8. Similarly, Petitioner contends “under the broadest reasonable interpretation, ‘consecutively displayed’ can include either consecutive in time, or spatially consecutive.” *Id.* at 11.

In other words, Petitioner contends that using control commands to move a highlighted cursor across, up, or down, a grid that displays multiple programs, channels, and times—as depicted in Figures 18 and 25, with the grid overlaying a program, as broadly described in connection with a passage at column 3, lines 4–9 described below—corresponds to the selecting and displaying limitations under construction here. So using the VDG to receive from the data processing means “commands . . . for displaying interactively-selected successive portions of said program schedule information in overlaying relationship with another program signal,” as claim 5 recites, corresponds to receiving cursor commands to interactively-select successive portions (for responsive displaying with a highlighted cursor as explained next). The claim 5 clause “each said portion displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods or programs for which program schedule information has been received” corresponds to displaying highlighted successive portions of a grid, thereby providing navigation via cursor movement through time periods or programs responsive to the cursor commands. See Reply 8–12 (characterizing this position as the same position as advanced by Patent Owner during the ITC Case).

In simple terms, under Petitioner’s claim construction, consecutive remote control commands move the cursor to *select* successive portions of the grid, and corresponding highlighting via the moving cursor causes successive *display* of the selections, to provide responsive navigation

through times or programs. *See* Ex. 1401, Figs. 3, 18, 8:49–51, 14:42–54 (cursor navigation). Patent Owner’s expert, Dr. Bovik, agrees that the displayed and selected limitations relate to each other. Ex. 2406 ¶ 83 (stating “similar language is found in each independent claim” and the “interactively-selected” limitation “is directed to what is displayed in the overlay”).

The specification supports this reading of the challenged claims. For example, within the Menu Mode (Ex. 1401, 13:15)—i.e., in the “All-Listings mode” (*id.* at 14:42) or in the “‘Category Listing’ mode” (*id.* at 14:54)—commanding the cursor to move informs the user of an interactive selection by displaying the selection as highlighted. This informing or displaying by highlighting results in providing an immediate option as a result of the highlighting—an option to tune to the highlighted program or to set a reminder message (assuming a highlighted future program). *See id.* at 15:8–13. The ’556 patent states this highlighting feature occurs “with other modes.” *Id.* at 15:41–46.

Patent Owner does not provide a construction for the selected and displayed portions at issue here, but raises arguments that Petitioner contends turn on claim construction thereof. *See* Reply 7 (citing PO Resp. 27–28, 32–34). According to Patent Owner, “successive portions of the schedule information are displayed based on the user having interactively-selected *to change* the displayed schedule information by a channel in the channel domain or by a time period in the time domain.” PO Resp. 28 (emphasis added). This argument implicates a required “change” of “displayed schedule information” beyond a display change caused by spatially moving a highlighted cursor (which Petitioner proposes).

Characterizing Patent Owner’s position, Petitioner contends Patent Owner argues that “‘interactively-selected successive portions’ means successive in time – i.e., it cannot correspond to using a cursor to navigate [spatially] through program listings that are displayed simultaneously.” Reply 7–8 (emphasis omitted). In similar fashion, Petitioner characterizes Patent Owner’s arguments as unduly restricting the “consecutively displayed” limitation to require “that program listings must be deleted and new ones added as the user enters successive commands.” Reply 10–11 (citing PO Resp. 32–34; Ex. 2406 ¶¶ 83–85, 93–94).

Patent Owner’s position rests on the argument that the challenged claims require certain features of the disclosed Browse mode. *See* PO Resp. 28 (“This is confirmed by the remaining claim language . . . , the disclosure of the Browse mode in the specification, and the explanation of the claimed invention in the prosecution history”). During the Oral Hearing, Patent Owner verified that its arguments turn on limiting the claims to features of the disclosed Browse mode. *See* Tr. 46:11–22.

Petitioner contends the Browse mode does not limit the challenged claims in the manner argued by Patent Owner. *See* Reply 11 & n.4 (stating “under BRI, the claims do not recite this mode,” “except for [unchallenged] independent claim 19” (which recites “for displaying program schedule information in a browse mode” (Ex. 1401, 29:67–30:2)). Petitioner agrees the challenged claims *cover* “successive in time” portions as the Browse mode supports, but also contends that Figures 18 and 25, which relate to other modes, support its claim construction that includes “spatially successive” portions of a guide. *See* Reply 8 (citing Ex. 1401, 14:1–27, Figs. 11, 12A, 18, 25), 11 (similar contention).

The '556 patent supports Petitioner's position. At column 3, lines 4–9, the '556 patent specification generally describes (i.e., without mentioning a specific mode of operation), “a particular need *for a flexible program schedule system* that allows a user to view selected broadcast programs on a portion of the screen of the television receiver *while simultaneously viewing program* schedule information for other *channels and/or services* on another portion of the screen.” Ex. 1401, 3:4–9 (emphases added). This passage does not limit the simultaneous viewing of “selected broadcast programs” or “*program* schedule information for other *channels and/or services*” to a single-entry (i.e., for a single program or channel). Construing the claims to include listing either a single program or several programs listed simultaneously as a partial overlay provides the surfing feature described as a disclosed need: “[A] need exists for a program guide which displays current program schedule information for each channel as the user surfs through the available channels.” *Id.* at 2:59–61.

In the context of at least one embodiment of the Browse mode, surfing means simply obtaining textual information about a channel while viewing another channel—as opposed also to viewing video on, and textual information about, each channel as occurs while surfing in the Flip mode. *See supra* Section I.C; Ex. 1401, Figs. 5 (Flip), 11, 12, 12A (Browse). So a user can “surf” in the Browse or Flip modes by flipping through a single line of channel information (providing textual information about the channel) displayed as a partial overlay. *See id.* Or according to the general teaching at column three quoted above and other disclosed aspects of other modes, a user can “surf” by scrolling a highlighting cursor across two or three lines of channel information displayed simultaneously as a partial overlay. *See* Ex. 1401, 2:42–61, 3:4–9, 3:33–37, 15:8–12, 15:42–47. Claim 15 hues more

closely to the latter surfing descriptions, by reciting a partial overlay of “user-selected *portions* of said schedule information *comprising* listing information *for at least one program* different from display signal.” *Id.* at 28:20–22 (emphases provided). Similar limitations in all the challenged claims comport with at least the latter broader description of surfing that is not limited to the described browse mode.

During the Oral Hearing, Patent Owner characterized the passage at column three, lines 4–9, quoted above, as “just a generic characterization.” *See* Tr. 43:13–44:4. Patent Owner explained that only the Flip and Browse modes provide for partial overlays, but this explanation does not address the column three passage, which provides support for the broad language in the challenged claims—i.e., providing for overlays of guide *portions* not limited to a single line of information—and without any mention of the Browse mode (or any mode), or without mentioning adding and deleting. *See id.* at 50:2–7; Ex. 1401, 3:4–9. Similar to claim 15, for example, claim 5 broadly recites “displaying interactively-selected successive *portions* of said program schedule information.” Ex. 1401, 25:43–44 (emphasis added). *Portions* include more than a single line of information.

Construing the challenged claims to a single-line of information as disclosed in Browse mode figures imputed by Patent Owner improperly relies on the figures to limit the claims to require an adding and deleting feature. *See* Ex. 1401, 11:10–15, 33–53, Figs. 11, 12, 12A. “While the drawings of [the Browse mode] consistently depict [adding and deleting a single line of information], drawings in a patent need not illustrate the full scope of the invention.” *See Arlington Indus., Inc. v. Bridgeport Fittings, Inc.*, 632 F.3d 1246, 1255 (Fed. Cir. 2011) (citing *MBO Labs., Inc. v. Becton, Dickinson & Co.*, 474 F.3d 1323, 1333 (Fed. Cir. 2007) (“[P]atent

coverage is not necessarily limited to inventions that look like the ones in the figures. To hold otherwise would be to import limitations onto the claim from the specification, which is fraught with danger.”)).

During the ITC Case, contrary to its position here, Patent Owner agreed the figures cannot limit the claims, arguing “further limiting ‘browse mode’ *to the display of only one program listing is unwarranted. . . .* In contravention of settled rules, *this would limit the term to the figures disclosed in the specification.*” Ex. 2401, 60 (citing *Hill-Rom Servs. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014)) (emphasis added).

Also, the ’556 patent describes splitting the television screen, i.e., on a single screen, showing two or more programs while employing the Browse mode. Ex. 1401, 11:61–66 (“[I]t may also be possible to simultaneously display *multiple broadcast programs* on a single screen for viewing, or to split the screen to show, for example, broadcast programs in combination with advertisements.” (emphasis added)). The ’556 patent also describes including different information in a Browse overlay, for example, “a currently aired program [on another channel not being viewed currently] or a clip of a future program corresponding to the schedule information then appearing in the Browse overlay” (*id.* at 11:54–58). These disclosures contemplate viewing different types of information in an interactive overlay simultaneously with multiple television video programs—coupling interactive program overlay information for each of the broadcast programs appearing on a single screen. This shows that the ’556 patent involves listing multiple interactive items of program information as an overlay

corresponding to one or more broadcast programs on the screen.⁹ Based further on the highlighting disclosures noted above and further below (*see, e.g.,* Ex. 1401, 13:15–14:44, 18:27–34, 61–64), this indicates using a cursor to select and display among the interactive items and indicates multiple listings or different types of selectable information for a single or multiple television broadcast program(s).

In relation to Figures 18 and 25 relied upon by Petitioner, as part of the “All Listings mode” (*see* Ex. 1401, 13:15–14:44), the specification states “[i]n the All Listings mode, *a moveable highlighted cursor 185 is used to indicate the currently selected program to the user.* The user manipulates the cursor movement using the direction arrow keys on the remote controller.” *Id.* at 14:42–44 (emphasis added). In other words, in this mode, the moveable cursor “indicate[s] the currently selected program to the user,” which supports Petitioner’s position that moving a highlighted cursor in general corresponds to the “consecutively displayed” and “displaying interactively-selected successive portions” limitations.

In the Menu Mode (or All Listings Mode), the specification states “no program signal from the tuner is displayed on the television receiver”—i.e., no overlay occurs in that mode. Ex. 1401, 13:28–29. Nevertheless, as discussed above, the specification generally does not limit the claims to a specific Browse mode feature (e.g., a single channel listing or adding and deleting that listing) or to an overlay menu size, as it generally describes “a particular need for a flexible program schedule . . . to view selected

⁹ During the Oral Hearing, Patent Owner similarly characterized the claims as including several mode features. *See* Tr. 49:5–8 (“[W]e’re saying there’s at least one mode that operates that way. You might have other modes that do other things. It’s a comprising claim.”).

broadcast programs on a portion of the screen . . . while *simultaneously* viewing program schedule information *for other channels and/or services on another portion of the screen.*” *Id.* at 3:4–9 (emphasis added). As discussed above, this passage describes *simultaneously* viewing information about multiple channels or other services, instead of simultaneously viewing just one channel at a time. Another passage similarly describes viewing a single program with schedule information for multiple programs *simultaneously*: “It is . . . an object of the present invention to provide a system that will allow the user to view a broadcast program while, *at the same time, interactively viewing program schedule information for other programs.*” *Id.* at 3:33–37 (emphasis added)). Some navigating mechanism necessarily must exist to interact with the overlaid schedule information for other programs. The ’556 patent provides the mechanism—“the user may *navigate through the program schedule system* with a remote controller . . . [using] *conventional principles of remote control . . . logic*, such as by infrared or other signaling, or other suitable user interface.” *Id.* at 8:49–54 (emphasis added). So the ’556 patent describes using a conventional remote controller to control a cursor or otherwise control selections.

Although, as noted in the discussion of the ITC Case, the ALJ determined that the Browse mode only lists one program at a time, the record does not indicate the ALJ considered the broader passages of column three or the other passages of the specification indicating multiple programs as quoted above. Also, Patent Owner contended at the Oral Hearing that no need exists here to resolve this single-entry listing question. *See* Tr. 45:14–18 (“And whether or not it should be limited to one display, I don’t think that’s a question we need to reach here because there is no successive display at all.”). Later, however, Patent Owner responded “I think it does”

during a colloquy about whether the '556 patent supports selecting one of two simultaneous listings with a cursor in the Browse mode. *See* Tr. 45:25–46:4 (contending this question does not appear in the briefing).

Accordingly, Patent Owner does not necessarily contend here that the challenged claims require “single-entry” listing overlays, but does appear to contend the claims require adding and deleting. *See* Reply 10 (characterizing Patent Owners arguments). Requiring adding and deleting involves picking and choosing different disclosed Browse mode features as claim features, as Petitioner argues. *See id.* As described above, the '556 patent supports combining cursor features of the Menu mode, with overlay features of the Browse mode, or other modes, per the broader passage describing flexible overlays (Ex. 1401, 3:4–9), the similar passage describing interactive overlays of programs as an object of the invention (*id.* at 3:33–37), the cursor navigation passage (*id.* at 8:49–54), and the passage describing channel surfing as providing program information for unviewed programs instead of “wait[ing] until the advertisement . . . is over” (*id.* at 2:42–61). Stated differently, the '556 patent supports displaying successive selections provided by commanding a highlighting cursor in a partial overlay as satisfying the “consecutively displayed” and “interactively-selected [successive] portions.”

Moreover, “even where a patent describes only a single embodiment, claims will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words of expressions of manifest exclusion or restriction.” *Martek Biosciences Corp. v. Nutrinova, Inc.*, 579 F.3d 1363, 1381 (Fed.Cir.2009); *Liebel–Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed.Cir.2004). The '556 patent does not show a clear intent to limit the “consecutively displayed” and “interactively-selected

[successive] portions” to any specific features of a Browse mode or to limit aspects of “other modes” as a partial overlay that may include a “highlighted program.” *See* Ex. 1401, 15:41–42.

Patent Owner raises the prosecution history but does not show how it narrows the challenged claims to specific features of the Browse mode. For example, in a section titled “Relevant Prosecution History” (PO Resp. 10), Patent Owner notes it argued during prosecution that “the Reiter and Strubbe combination did not disclose the claims ‘directed to the Browse mode in combination’” with the reminder functionality. *See* PO Resp. 14 (quoting Ex. 1406, 979 arguing the Examiner allowed the claims based on the “reminder function”). In another section that does not address claim construction, Patent Owner refers to its prosecution history arguments “discussed above” and “the disclosure of the Browse mode.” *Id.* at 28. But Patent Owner does not show how any specific prosecution history argument or amendment limits the challenged claims (except for possibly claim 17) to *require* changing the displayed textual schedule information to list new textual information to preclude cursor navigation. *See id.*

The cited prosecution history (PO Resp. 14 (citing Ex. 1406, 979)) reveals then-Applicant argued “[a]s [*also*] reflected in the Interview Summary Record of May 7, 1996, . . . the Examiner also found separately allowable claims directed to the Browse mode in combination with the capability of a user to select a reminder for a chosen program.” Ex. 1406, 979 (emphasis added). This argument, which purportedly summarizes the noted interview with the Examiner, at most, shows Applicant argued *some claims* (discussed during the May 7, 1996, interview as noted below) include a Browse mode. Applicant concluded its prosecution argument with “[a]ll of the pending claims now include either the tuning or reminder aspect.” *Id.*

This concluding statement does not refer to the Browse mode or adding or deleting. *Id.*

In addition, contrary to how Applicant characterized the May 7, 1996, interview in its prosecution arguments, the Interview Summary Record does not refer to the Browse mode. *Id.* at 939. And it lists only three claims, claims 42, 72, and 73, as the “[c]laims discussed.” *Id.* Claims 42, 72, and 73 issued respectively as claims 2, 16, and 17. *See* PO Resp. 11; Ex. 1406, 939, 1835, 1845. (The record reveals that then-claims 42 and 73 did not issue until further amendments by the Applicants. *See* Ex. 1406, 951–52, 961 (May 23, 1996 amendments, referring to subsequent amendments E2, M2)).¹⁰

Of the three claims discussed during that interview, only then-claims 72 and 73 included language implicating aspects of the Browse mode by reciting “said navigation including deleting at least one program listing appearing in the overlay and adding at least another program listing in the overlay.” Ex. 1406, 960–962 (underlining original showing amendments by Applicant), 946, 976 (May 23, 1996 amendments and remarks “in response to the Office Action dated March 6, 1996” and in response to “the personal

¹⁰ The Examiner issued a Response to Rule 312 Communication, referring to an amendment of November 29, 2001, filed by Applicant. Ex. 1406, 1829. Applicant filed the amendment pursuant to 37 C.F.R. § 1.312. *Id.* at 1833. The amendment does not include arguments for allowability or show changes made to the claims but indicates the “amendment merely corrects various minor inadvertencies in the claims.” *Id.* at 1867. The Notice of Allowability refers to an “amendment filed on 7/30/2001, but neither it nor the Response to Rule 312 Communication provide reasons for allowance. *Id.* at 1824–29. The record indicates that on July 30, 2001, Patent Owner did not present arguments for patentability, but presented a paper stating it amended the inventorship. *See id.* at 1817–23.

interview held on May 7, 1996”); *see supra* Section I.C (discussing Fig. 12A and the Browse mode, which includes adding and deleting one program at a time).

In the same May 23, 1996, amendments, Applicant *deleted* “*one at a time*” from the phrase “displayed [one at a time]” in prosecution claims 72 and 73 (now claims 16 and 17). Ex. 1406, 960–62. Similarly, as indicated in the previous paragraph, Patent Owner also added “at least” to the adding and deleting phrase of claims 72 and 73. *Id.* These amendments show Applicant did not intend to limit any claims to a partial overlay with a single program listing. And as Petitioner persuasively argues, because claim 17 expressly recites the adding and deleting limitations, the claim differentiation doctrine dictates against imputing any argued Browse mode limitations into all of the challenged claims. *See* Reply 17. Patent Owner characterizes claims 15 and 17 as “similar,” but claim 17 recites adding and deleting limitations not recited in claim 15. *See* PO Resp. 11.

In the same May 23, 1996, remarks that involved amendments adding “at least” and removing “one at a time” after the May 7, 1996, interview, Applicant argued

the principal invention of the claims remaining in the present application -- i.e., *the so-called ‘Browse’ mode of operation – permits* a user to interactively scan through program listings in a time and/or channel domain while continuing to view the current program The user can thus interactively navigate through the listing information . . . by issuing appropriate sequential time and/or channel control commands, while not missing any content of the program being simultaneously viewed.

Ex. 1406, 977 (emphasis added).

In the context of the amendments (i.e., adding “at least” and removing “one at a time”) to claims 72 and 73 discussed during the May 7, 1996,

interview, Applicant’s quoted arguments above do not urge a single-entry restriction with respect to any claim, and at most implicate adding and deleting with respect to claims 72 and 73 (per their claim language as amended), whatever Applicant considered to define the Browse mode. Also by referring to what “the so-called ‘Browse’ mode of operation . . . *permits*,” Applicant did not restrict the claims to a specific feature of the Browse mode. *See id.* (emphasis added). Even if Applicant, at most, may have intended some claims to include some features of the “so-called ‘Browse’ mode of operation”—only challenged claim 17 (prosecution claim 73) retains any of the argued Browse mode features—and even claim 17 includes more than a single-entry program listing (thereby implicating at least cursor navigation).

During the ITC Case, Patent Owner down-played its use of the term “browse” and stressed its prosecution history arguments and claims intended to capture

a television signal in partial overlay with a guide having interactive functionality—including the ability to scroll through different time periods and channels, tune to different programs from the guide, set reminders, etc. Although the inventors used the short-hand term “browse” to describe these features, they did not limit the invention to a “browse” mode of operation. They simply pointed out that the claims did not cover static guides overlaid with program information—something that the claim language regarding the video display generator means also makes clear.

Ex. 2401, 68 (emphases added).

Shifting from its characterization of the prosecution history in the ITC case as merely overcoming overlaid “static guides,” Patent Owner argues here that the challenged claims “are directed to interactively-selected successive portions of schedule information ***for display*** in an overlay—

namely, successive portions of the schedule information are displayed based on the user having interactively-selected *to change the displayed schedule information by a channel in the channel domain or by a time period in the time domain.*” PO Resp. 28 (citing Ex. 2406 ¶¶ 82–83). Again, this ambiguous argument about “change” at most only tracks the scope of claim 17’s adding and deleting limitations. Regarding the other challenged claims, as discussed above, passages in the specification quoted above (*e.g.* Ex. 1401, 3:4–9, 33–37, 8:49–54), and Patent Owner’s position in the ITC Case, describe a need for *flexible interactive* partial overlays (as opposed to “static guides” (Ex. 2401, 68)) without precluding cursor navigation (*i.e.*, otherwise requiring specific Browse mode features such as the adding and deleting features or the single-listing features). *See* Ex. 1401, Figs. 11, 12, 12a (discussed *supra* Section I.C).

Moreover, as Petitioner argues, unchallenged claim 19 specifically recites “the browse mode of operation” (Ex. 1401, 30:1–2) and no challenged claim does. *See* Reply 15 n.5. As none of the challenged claims recite the Browse mode, claim 19 indicates Patent Owner did not intend the challenged claims to require the recited “browse” limitation (even if Patent Owner intended otherwise for claim 17 and 19). “[I]mporting a [browse] limitation improperly discounts substantive differences between the claims. Such differences can be a ‘useful guide in understanding the meaning of particular claim terms.’” *Arlington Indus.*, 632 F.3d at 1254 (quoting *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) (en banc); citing *Curtiss–Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1381 (Fed. Cir. 2006) (“[C]laim differentiation takes on relevance in the context of a claim construction that would render additional, or different, language in another independent claim superfluous . . .”)); *see also see also*

IPR2017-01148, IPR2017-01149, IPR2017-01150

Patent 6,418,556 B1

Intellectual Ventures I LLC v. T-Mobile USA, Inc., 902 F.3d 1372, 1379

(Fed. Cir. 2018) (“If the patentee had intended to similarly restrict the resource allocator in claim 1, it could have done so using the language of [dependent] claim 19, but did not.”).¹¹

Like claim 19, claim 17 also undermines Patent Owner’s arguments. Claim 17 limits the “interactively selected . . . and consecutively displayed . . . for successively navigating” clause by reciting “said navigation including deleting at least one program appearing in the overlay and adding at least one program appearing in the overlay.” Claim 17 shows that “interactively selected” and “consecutively displayed,” as recited in the other challenged claims, does not require adding and deleting, otherwise, the adding and deleting clauses recited in claim 17 would be superfluous. See *Arlington Indus.*, 632 F.3d at 1254 (citing *Curtiss–Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1381 (Fed. Cir. 2006) (“[C]laim differentiation takes on relevance in the context of a claim construction that would render additional, or different, language in another independent claim superfluous”)).

Assuming for the sake of argument that alleged prosecution history disavowals apply in these *inter partes* proceedings, Patent Owner’s remarks in the instant case that rely on prosecution history fail to show how it met the exacting standard of disclaiming claim scope during prosecution as required

¹¹ *Arlington* applied the doctrine of claim differentiation on two independent claims. See *id.* at 1250–54 (claims 1 and 8). We recognize the doctrine is not “at its strongest” here, but it does shed light on the patentee’s intent, as *Arlington* makes clear. See *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004) (“[W]here the limitation that is sought to be ‘read into’ an independent claim already appears in a dependent claim, the doctrine of claim differentiation is at its strongest.”).

to limit the challenged claims to the disclosed, but unclaimed, Browse mode features (e.g., adding and deleting, or single-listing features). “Disavowal is an exacting’ standard under which it must be established that the patentee ‘demonstrate[d] an intent to deviate from the ordinary and accustomed meaning of a claim term’ through ‘expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.’” *Intellectual Ventures*, at 10 (quoting *Epistar Corp. v. Int’l Trade Comm’n*, 566 F.3d 1321, 1334 (Fed. Cir. 2009)).

Patent Owner also argued during the ITC Case that construing the claims to require a Browse mode “unduly narrows the claims’ scope.” See Ex. 2401, 71; 48Inst. Dec. 29–32 (discussing the ITC Case and “one mode”). Consistent with that position, in summarizing its position during prosecution, Applicant stated “[t]he fact that all of the pending claims remaining in the application now include either the selecting or reminder aspect *is an independent basis for allowance of the present application.*” Ex. 1406, 1032 (May 27, 1997 Applicant remarks (emphasis added)).

Applicant also stressed that “the references currently teach or suggest no more — i.e., the display of schedule information as an overlay.” *Id.* at 1031. Distinguishing static guides, Applicant explained its claims require “a fully interactive capability for allowing the user to sequentially navigate through the program schedule information in a time and/or channel domain.” *Id.* at 1030. None of the arguments discuss, let alone preclude, cursor navigation.

As noted above in Section II.A.1, the challenged claims recite “displaying reminder selection messages in at least one mode” showing, per the explicit claim terms (i.e., “at least one mode”) that the challenged claims do not require selecting a reminder message in a single mode of operation (such as the Browse mode). See, e.g., Ex. 1401, 15:8–13 (providing

reminder selection in the “All Listings Mode”—a feature of the Menu mode).¹² The challenged claims also require a reminder message “to be displayed . . . at a predetermined time prior to the time of occurrence of each chosen future one of said television programs.” This clause makes little sense if the Browse mode cabins the challenged claims on all fronts, because not displaying reminder messages in the Menu mode, Flip mode, or a normal television viewing mode, defeats the purpose of the reminder message as alerting a viewer of an upcoming desired program. *See* Ex. 1401, Fig. 14 (reminder message 140); 12:63–13:4 (reminder message appears five minutes before the selected program begins); 48Inst. Dec. 30–32.

Another phrase of claim 5 recites the overlay feature “to display for a predetermined display period each said selected portion of program schedule information in partial overlaying relationship with said another display signal currently appearing on said video display.” The Browse mode does not include such a feature as disclosed—but the Flip mode does—further showing the claims cover a combination of mode features. *See* Ex. 1401, 10:43–65, 12:14–16 (“Once in the FLIP mode, the graphic overlay will be removed after the duration of the time-out interval has passed.”)

In summary, the prosecution history arguments, the ITC Case arguments by Patent Owner, the disclosures in the ’556 patent describing generic remote control, cursor navigation, and the ultimate need for a

¹² The challenged claims require displaying the “reminder message being displayed in overlaying relationship with another display signal being displayed at the time said reminder message is displayed” (which may include a television viewing mode), they do not require displaying the reminder messages in any particular mode and do not require selecting the reminder messages during an overlay event.

flexible interactive program guide, and the plain language of challenged claims reciting “displaying . . . *portions of said schedule information*,” support Petitioner’s claim construction. Other than challenged claim 17, the challenged claims do not require adding and deleting textual or other information. The disclosure of “a moveable highlighted cursor . . . to indicate the currently selected program to the user” (*see* Ex. 1401, 14:42–44, Fig. 18) and highlighting disclosures for “other modes” (*id.* at 15:42–47) show that highlighting successive time slots or channels on a guide screen, without necessarily changing textual information on the screen, corresponds to the “successive portions” and “consecutively displayed” navigation limitations of the challenged claims, with claim 17 narrowing those navigation phrases by reciting adding and deleting phrases.

Accordingly, even if the claims *include* features of the Browse mode, nothing *limits* the claims to that mode generally or specifically with respect to selecting and displaying a portion of a program guide as a partial overlay. Based on the foregoing reasons, we adopt Petitioner’s claim constructions. Therefore, selected successive portions and consecutively displayed portions include consecutive in time or spatially consecutive displays of portions.

3. The ITC Case Infringement Allegations

Petitioner contends Patent Owner’s infringement allegations during the ITC Case support its claim construction positions. Reply 12. As discussed above in the claim construction section, in the Institution Decision, we preliminarily determined that the ITC Case supports our initial determination that “at least one mode” as recited in the challenged claims includes more than just the Browse mode. 48Inst. Dec. 30–32. As also indicated above, Patent Owner conceded during the Oral Hearing that its claim construction arguments rest on the challenged claims being limited to

the Browse mode (*see* Tr. 41:7–9), which the record does not support for the reasons noted above.

Nevertheless, the panel ordered and authorized additional briefing to explore further Patent Owner’s contention during the Oral Hearing that its ITC Case position does not contradict its position here. 48IPR, Paper 34. Accordingly, Patent Owner filed a Sur-Reply (48IPR, Paper 35 (“PO Sur-Reply”)), Petitioner filed a Response to the Sur-Reply (48IPR, Paper 37 (“Pet. Resp. Sur-Reply”)), and Patent Owner filed an Opposition (48IPR, Paper 39 (“PO Opp.”)).

In its Sur-Reply, Patent Owner contends it maintains consistent claim construction positions in the instant cases and the ITC Case. PO Sur-Reply 1. According to Patent Owner,

[a]t the ITC, Patent Owner’s contentions and expert’s report discussed using arrow buttons to navigate through listings in Comcast’s X1 On-Screen Guide and X1 Mini Guide, but did not, as Comcast asserts, rely on “simply moving a cursor” between cells of a displayed grid “without changing” the display, as satisfying either of the above-limitations relating to the consecutive display of successive portions of schedule information. Reply 10, 13. For both features of the X1 guide, the expert demonstrated that program schedule information displayed on the screen changed, as discussed further below. Comcast was not focused on this issue at the ITC, and did not dispute that displayed information changed, but instead argued that the claims were limited to displaying information for one program only at any time.

Id. (citing Ex. 2001, 69).

Contrary to Patent Owner’s argument, however, Petitioner shows that Dr. Delp, Patent Owner’s expert in the ITC Case, did not mention changing screen information as occurring during cursor movement in the allegedly infringing products. *See* Pet. Resp. Sur-Reply 1 (arguing Patent Owner’s

ITC Case position did not rely on “the banner or any other part of the grid changing”). Even if some of the grids upon which Dr. Delp relied happen to show some banner information changing on the bottom of the screen, Dr. Delp never mentioned that aspect in any testimony that the parties rely upon. *See id.*; PO Sur-Reply; PO Opp. Moreover, Petitioner points to at least one example that shows no information changing in a product alleged by Patent Owner to infringe exemplary claim 3 at the ITC Case. Pet. Resp. Sur-Reply 2 (citing Ex. 1028, 2–3; Ex. 1029; Ex. 1030, 44–45, 59–60, 79–80, 85–88; Ex. 1031, 59–62, 97–98; Ex. 1032; Ex. 1033).

For example, Dr. Delp explains that “limitation 3f” in claim 3, i.e., each said portion comprising listing information for each successive one of said television programs scheduled to appear on said set of channels and being consecutively displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods or programs for which program schedule information is stored in said memory means, reads on “[t]he Mini Guide.” *See* Ex. 1428, 2. Dr. Delp summarizes in general that “the Mini Guide is . . . configured to respond to guide control commands by *responsively displaying the appropriate listing information.*” *Id.* (emphasis added). He further explains that “CX-1601.000014 and CX-1601.000015 illustrate a user navigating through the overlaid program schedule information by moving the highlighted programming thirty minutes forward.” *Id.* He explains that “using the arrow buttons on a remote controller” allows a user to navigate through time and/or channel domains, and it “corresponds to ‘listing information . . . being *consecutively displayed* in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods or programs for which program schedule information

is stored.” Ex. 1428, 2 (emphasis added). This testimony supports Petitioner’s claim construction here.

In its Opposition, Patent Owner responds by arguing “Dr. Delp pointed to the cursor movement for ‘navigating’ within the guide, and not for the disputed ‘display of interactively-selected successive portions’ and ‘consecutively displaying each said portion’ limitations.” PO Opp. 3 (citing Ex. 1[4]28, 2). The cited evidence, however, does not support Patent Owner’s construction. It shows persuasively that Dr. Delp did not limit his testimony to the “navigating” aspect of the clause at issue in claim 3 during the ITC Case. See Ex. 1428, 2–3. Rather, as repeated above, Dr. Delp’s testimony responsively explains how the Legacy Mini Guide satisfies the whole clause 3f of claim 3, and that clause includes a “consecutively displayed” limitation. See *id.* At the outset, Dr. Delp generally stated “[t]hey do” after being asked if “the Legacy guide boxes satisfy this [claim 3f] limitation.” See *id.* at 2. The claim 3 limitation, including “consecutively displayed in response to corresponding consecutive . . . commands,” reasonably corresponds to the challenged claims limitations of “consecutively displayed” and “interactively-selected [successive] portions.”

Based on the foregoing discussion, Petitioner shows persuasively that Patent Owner’s positions in the ITC Case support Petitioner’s claim

construction here and contradict Patent Owner's claim construction arguments here.¹³

B. Obviousness

As indicated above, Petitioner contends that the challenged claims of the '556 patent are unpatentable under 35 U.S.C. § 103(a) based on Young '801, Young '121, and Strubbe, further in view of one of Moro (48IPR), Reiter (49IPR), or Remillard (50IPR).

1. Level of Ordinary Skill and Weight of Expert Testimony

Citing the declaration testimony of Mr. Wechselberger, Petitioner describes the level of ordinary skill in the art as follows:

A person of ordinary skill in the art (POSITA) would have had at least a bachelor's degree in computer science, computer engineering, electrical engineering, or the equivalent thereof, and 3–5 years of experience or familiarity with software development in the 1990–1993 time-frame, or the equivalent thereof, and some experience within the television distribution industry (broadcast, cable, or satellite), including television signal processing in consumer appliances.

Pet. 17–18 (citing Ex. 1409 ¶ 30).

Patent Owner does not dispute the description and provides a materially similar description of a person of ordinary skill in the art. *See* PO Resp. 15 (citing Ex. 2406 ¶¶ 1–19). During the Oral Hearing, Patent Owner indicated any differences between Petitioner's and Patent Owner's descriptions do not create a dispositive issue. *See* Tr. 66:11–18. On this

¹³ Both parties appear to have switched positions to a certain extent relative to positions in the ITC Case. *See, e.g.*, Ex. 2401, 68–73, 100. Nevertheless, the record here supports Petitioner's claim construction for the reasons explained herein, including a different evidentiary record, and the ITC Case involved a narrower claim construction standard than the standard employed here.

record, Petitioner's description comports with the level of ordinary skill implied by the prior art references discussed further below. Accordingly, we adopt it.

Petitioner contends that the testimony concerning how one of ordinary skill in the art would have understood the references and whether one of ordinary skill in the art would have found the claimed invention obvious, which was provided by Patent Owner's expert, Alan C. Bovik, Ph.D., should be given little weight. Reply 2–7.

We weigh the particular testimony regarding each particular issue on which Dr. Bovik or Mr. Anthony J. Wechselberger opines based on the factual corroboration, articulated reasoning, and disclosure of underlying facts or data provided by the expert. *See In re Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1368 (Fed. Cir. 2004) (“[T]he Board is entitled to weigh the declarations and conclude that the lack of factual corroboration warrants discounting the opinions expressed in the declarations.”); *see also* 37 C.F.R. § 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”); *cf. In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016) (Petitioner's burden of proving obviousness cannot be satisfied by mere conclusory statements).

2. Overview of Young '801

Young '801 discloses program schedule information for a currently tuned channel and other channels. *See* Ex. 1402, Fig. 2. Young '801 describes an interactive program guide/grid including program schedule information stored in schedule memory 232 and outputted to video display generator 224. *Id.* at 26:5–7. According to Young '801, a user navigates through the guide/grid using a movable cursor to select programs

for recording by a television tuner and to access additional information about programs (e.g., program description). *Id.* at 11:30–12:26, 13:28–14:5.

Figure 2 (annotated by Petitioner (48Pet. 36)) follows:

	11:00 AM	11:30 AM	12:00 PM
2	JUDGE(PART 1)	JUDGE(PART 2)	AT NOON
4	GOLDEN GIRLS	NEWS	INSIDE EDITION
5	YOUNG & RESTLESS 26	NEWS 26	
7	PERFECT STRA	LOVING	ALL MY CHILD
9	SESAME STREET 26		
13	ALL MY CHILDREN		NEWS
44	EVERYDAY 26		MOVIE
A&E	LORNE GREEN'S WORLD OF S		FUGITIVE
CNN	NEWS		NEWS
DIS	WALT DISNEY PRESENTS		LUNCH BOX
LIF	JANE WALLACE		FRUGAL GOURM
TNT	MOVIE 26		
CH 2	KNTV-FOX	CBL 2	11:25A TUE APR 3

FIG.-2

Figure 2 illustrates a television schedule grid with information about the program on a currently tuned channel (channel 2) displayed to the right of the channel, and information about the tuned channel on the bottom of the grid. *See* Ex. 1402, 13:5–14:5. As shown above, upon first opening the guide, the cursor 32 appears situated on the current program of the currently-tuned channel. *Id.* at 13:28–30. The grid highlights the currently-tuned channel. *Id.* at 13:5–7, Fig. 1.

Figure 6 of Young '801 (as annotated by Petitioner) follows:

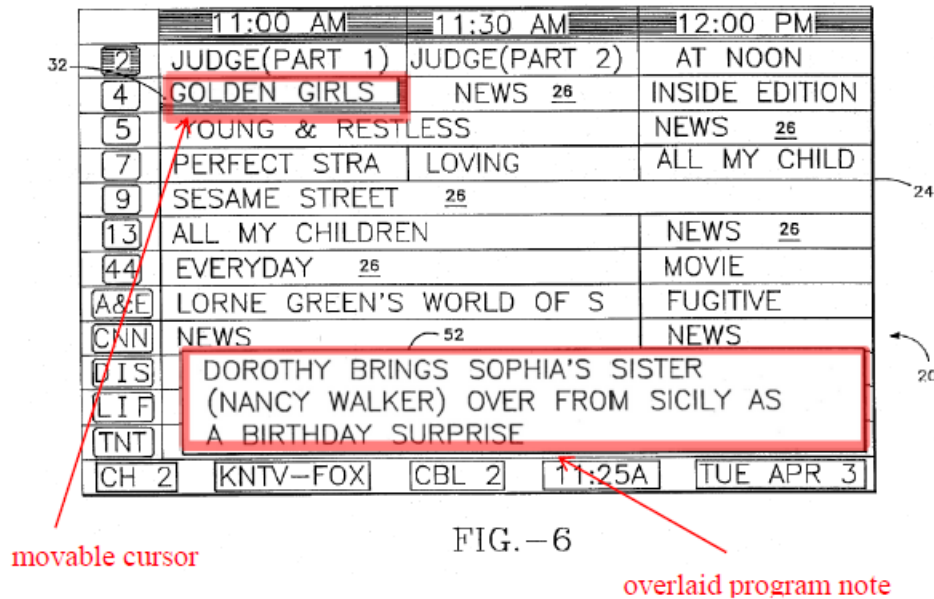


Figure 6 depicts “a television schedule grid screen 20 with a program note overlay 52.” *Id.* at 11:30–31, Fig. 6. “Program notes for a selected program are overlaid over the grid guide upon [user] request.” *Id.* at 12:14–16.

Young ’801 also discloses “[a] grid 24 page may be changed by either a page command or by entering a channel Up/Dn command as described above.” *Id.* at 13:7–9. Young refers to the latter command as a “Tuner command,” stating “[w]hen the last channel on a page is reached, the next Tuner command will change the channel to the channel listed at the beginning of the following page.” *Id.* at 13:2–4; *see also* 12:36 (describing “a Tuner Up/Down channel command”). Young also describes highlighting channels “[o]nce into the new page.” *Id.* at 13:17–18. In other words, in addition to using the Tuner Up/Down command to highlight cells 26 within a page, Young ’801 discloses changing a page to display another set of channels using a page command or the Tuner Up/Down channel command (which changes the page when the highlighted cursor exists at the

top/bottom of a page). *See id.* at 13:1–34.

In addition, Young '801 discloses “grid continuity icon 38” in Figure 1, which “indicate[s] cell 26 continuity,” wherein “the border of a cell 26 . . . *is continued to the next screen.*” *Id.* at 9:30, 10:1–2 (emphasis supplied). In other words, Young '801 discloses moving a cursor 32 within a page and for displaying a future set of times for a group of displayed channels on another page (i.e., “continued to the next screen”). *See id.* at 9:7–10:5. Young '801 provides “schedule update[s]” and allows future programs to be recorded. *See id.* at 10:6–31.

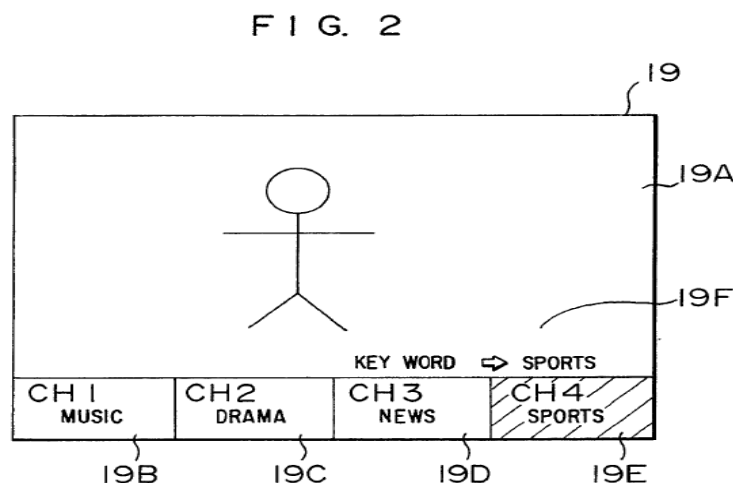
Another command, the “What’s On TV command,” “alternates between the grid guide 24 and the What’s Next on Channel row guide 58.” *Id.* at 14:14–16. This command “will replace the grid guide 24 with a single channel row guide 58.” *Id.* at 14:17–18. Toggling the command “switches between the grid 24 and the list 58.” *Id.* at 14:8–9. Also, “[w]hile viewing the single channel row guide 58, the Up/Down channel command may be used to change the channel to be listed.” *Id.* at 14:23–25.

3. Overview of Young '121

Young '121 teaches allowing a user to select a program from a program guide to create a reminder for selected future and recurring programs by toggling keys on remote control transmitter 116 or 118, with the reminder superimposed as a subtitle on the future TV program. Ex. 1411, 9:48–50; 15:19–16:41, 20:39–46, Figs. 3, 5, 13 (flow box 508). Young '121 also teaches the desirability to eliminate manual selections and allow all programs to be selected from a guide “by pointing to menu items.” *Id.* at 3:21–24.

4. Overview of Moro

Moro discloses overlaying interaction menus on a portion of a television broadcast using a remote control device. Ex. 1403, Abstract, 2:40–53, 5:36–41. Moro’s system displays a video signal of a first program while superimposing program information for other currently-available channels, and allows a user to tune to one of the superimposed channels. *See id.* A reproduction of Moro’s Figure 2 follows:



Moro’s Figure 2 above shows present program information for different channels (19B, 19C, 19D, and 19E) overlaying a different program depicted in 19A. *See id.* at 4:45–5:9. Moro describes one benefit of the system as allowing a user to obtain information about other programs “without interrupting” the currently viewed show. *Id.* at 6:6, see also 5:31–35 (similar). Character information 19B–19E “may be adapted to disappear automatically a predetermined time after starting display without operating . . . the remote controller 21.” *Id.* at 5:21–23.

5. Overview of Reiter

Reiter discloses a system for controlling a television with updateable television programming information, including overlaying program schedule information on current programs, using a remote control device. Ex. 1404,

6:13–38, 3:13–26. Reiter provides an option of displaying the television schedule information as an interactive menu in a partial overlay format so that “the viewer may continue to view the television program he is currently watching.” *Id.* at 6:29–38, 3:13–26 (options for an “overlay,” “window,” or “full screen,” with “scroll[ing]”), 4:63–65 (similar disclosure). Reiter discloses a viewer who “wished to view a subset of the information, e.g., the television program schedule for the day . . . , through a different set of code signals . . . could then direct the microcontroller to output only a part of the information stored in the microcontroller RAM.” *Id.* at 5:16–22.

Reiter discloses mixer 70, which mixes video data with program information and/or closed caption data to provide the overlay. *See id.* at Figs. 1, 2. The mixer mixes “a regularly received television signal with the signal generated by the microcontroller.” *Id.* at 2:45–47. Microcontroller 60 accesses RAM to send stored television programming schedule information to mixer 70, which also receives television video data from RF section 64. *Id.* at 5:2–7. Mixer 70 converts the program information “into a format which can be viewed [on television 40] in the same way [a]s the video data received via RF section 64, and mix the two in accord with the output format directed by the microcontroller.” *Id.* at 5:7–15.

6. Overview of Remillard

Remillard discloses overlaying interaction menus on a portion of a television broadcast using a remote control device. Ex 1405, Abstract, 2:63–3:3, 5:55–61 (“television broadcast”).) A reproduction of Figure 3 of Remillard follows:

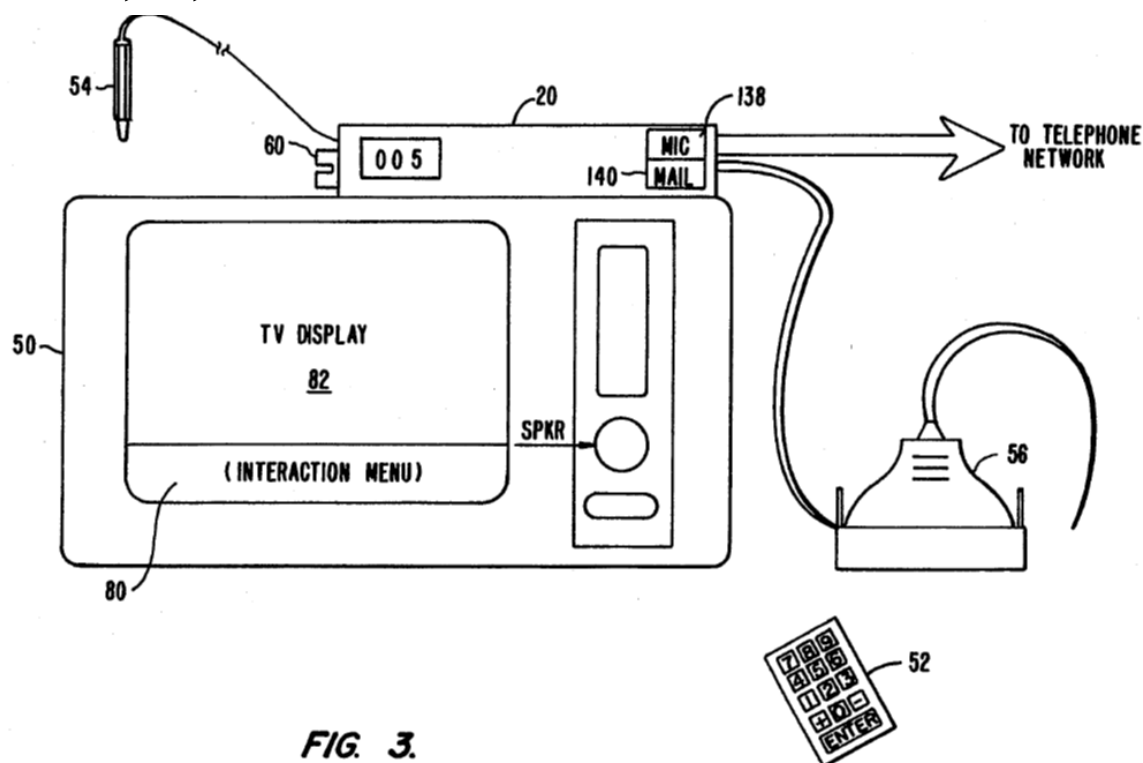


FIG. 3.

Figure 3 shows interaction menu 80 overlaid on a portion of a television broadcast, and shows remote control device 52 for interacting with the menu. See Ex. 1405, 7:35–50. Remillard allows a user to display the “interaction menu over all or a portion of a television screen, as desired,” but “[t]he preferred embodiment adds the interaction menu to a bottom portion of the screen and preempts or overlays the incoming programming in that portion of the screen displaying the interaction menu.” *Id.* at 2:63–3:1. Remillard states “[w]hen the user selects a particular show matching a predefined criteria, a special menu or informational graphic is optionally displayed” as an overlay in window area 80. *Id.* at 6:1–3. A user can also select a “purchasing menu” to overlay in window area 80. *Id.* at 6:4–6.

7. Overview of Strubbe

Strubbe describes an interactive menu system that provides overlay messages including reminder messages. Strubbe states “[a] further object of the present invention is to provide a system in which the user is informed

which and when each of his/her favorite programs is going to be broadcast in the near future and optionally is given an automatic reminder.” Ex. 1410, 1:35–37. According to Strubbe,

[e]xtended channel D shows a Future Programs menu page of upcoming programs (for example 7) chronologically occurring in the near future. This information is obtained from the memory part 36A of the microcomputer 30 which stores information concerning the user's favorite broadcast programs and information concerning particular broadcast programs which the user has defined as being desirable to watch or to record.

Ex. 1710, 4:21–29.

Strubbe also discloses displaying informational messages and television content, including reminder messages, in a partial overlaying relationship over a display signal for a predetermined period of time.

Ex. 1710, 6:45–49 (“This reminder may be . . . a visual message (typically shown as a [picture-in-picture (PIP)] display. At the appointed time, the PIP may then show the opening, for example, 10 seconds of the program.”), 8:19–24 (“In order to record a program presently being broadcast, the user depresses the Record Now button 52.6 on the remote control transmitter 52 and the graphic ‘Recording’ appears for approximately 10 seconds overlaid on the television screen with the program being recorded as shown in FIG. 11a.”).

According further to Strubbe,

[i]t should also be noted that the PIP display may be used to display various reminder messages. For example, at the start of a Future Program if another program is being watched, the PIP may display the initial 10 seconds of the Future Program allowing the user to selectively switch to that program if desired by swapping the PIP and the main display. Alternately, the PIP may be used to announce the commencement of recording of a Future Program.

Id. at 10:6–14.

Strubbe also discloses reminder selection messages, with messages selected using a remote controller, for chosen future television programs and with the messages overlaying a television signal:

Change B button 52.3 toggles between whether a reminder is desired and which kind of audible/visual reminder is to be given, for example, five minutes before the starting time of the program. This reminder may be an audible signal, or a visual message (typically shown as a PIP display). At the appointed time, the PIP may then show the opening, for example, 10 seconds of the program.

Id. at 6:42–49.

Figures 6a and 6b of Strubbe, showing reminder selection message functionality, follow:

FAVORITE PROGRAMS			
1	60 MINUTES	7:00 PM	CBS
2	ABC NEWS	6:30 PM	ABC
3	AS THE WORLD TU	2:00PM	CBS
4	DATING GAME	2:30PM	CH 9
5	FRONTLINE	8:00PM	CH 13
6	GENERAL HOSPITAL	3:00PM	ABC
7	JEOPARDY	7:00PM	ABC
MORE SHOW SECOND PAGE			

FIG. 6a

	 
	GENERAL HOSPITAL
TODAY AT 3:00 PM	
TO BE RECORDED IF NOT WATCHED. THIS PROGRAM WILL FIT ON THIS TAPE	
CHANGE A TO ADJUST RECORDING REQUEST.	
5 MINUTE REMINDER IS SCREEN MESSAGE.	
CHANGE B TO ADJUST TYPE OF REMINDER.	

FIG. 6b

Figures 6a and 6b represent a future program chosen by a user, such as “GENERAL HOSPITAL,” with the system providing a reminder selection message (i.e., “CHANGE B” for selecting a reminder to be displayed a selectable or default (5) number of minutes prior to future show “GENERAL HOSPITAL”). *See id.* at 5:20–50, 6:42–49 (describing selecting “whether a reminder is desired” and the types for the reminder messages).

8. 48IPR, *Young '801, Young '121, Strubbe, and Moro*

Petitioner persuasively shows that the combination of *Young '801*, *Strubbe*, *Young '121*, and *Moro* renders claims 5–10, 15, 17, 18, 29, 31, 32, 34–38, and 41–48 of the '556 patent unpatentable under 35 U.S.C. § 103(a). Petitioner also relies on the declaration testimony of Mr. Wechselberger (Ex. 1409). Petitioner contends “*Moro* was never cited or considered during prosecution” (48Pet. 22), and the “Petition presents *Young '121* in a new light” relative to the prosecution history of the '556 patent (*id.* at 24). The Petition also provides a persuasive summary of the prosecution history showing, as a whole, the Petition presents arguments and evidence not considered by the Examiner during prosecution of the '556 patent. *See* 48Pet. 22–24 (citing Ex. 1406; 1408; 1409; 1410).

Petitioner persuasively reads most of the claim limitations recited in independent claim 5 onto *Young '801*'s interactive menu system. *See id.* at 25–54. Petitioner reads the electronic programming guide preamble on *Young '801*'s programming guide at Figure 6, and on *Young 801*'s video display 210 and television schedule grid 24. 48Pet. 25–26, 32 (citing Ex. 1402, 12:27–32, 14:30–15:2, Figs. 1, 6, 10, 22B; Ex. 1409, ¶¶ 111–114).

Petitioner persuasively reads the “means for receiving television program schedule information” on *Young '801*'s TV tuner 202, which receives program schedule information in a VBI (vertical blanking interval). *Id.* at 32–33 (citing Ex. 1402, 25:16–25, Fig. 22A (element 202); Ex. 1409 ¶ 115). *Young '801* discloses storing listing data, cable channel assignment data, and other schedule data in memory, to be retrieved later for display. *See* Ex. 1402, 25:26–34, 26:5–10.

Petitioner persuasively reads the “user control means” for issuing commands and transmitting signals on *Young '801*'s remote controller 212.

IPR2017-01148, IPR2017-01149, IPR2017-01150

Patent 6,418,556 B1

Pet. 33–34 (citing Ex. 1402, 10:6–9, 13:28–34, 24:17–33, 26:5–21, 27:1–13, Figs. 21, 22A (remote controller 212); Ex. 1409 ¶¶ 116–122).

Petitioner persuasively reads the VDG (and recited functions) partially on Young ’801’s VDG 224, which receives commands from CPU 228 (data processing means) and tuner 202 (receiving means). *See* 48Pet. 35–43.

Petitioner employs teachings of Moro to modify or replace Young 801’s VDG, as explained further below. *See id.* (citing *inter alia*, Ex. 1403, 2:48–52, 3:55–58, 5:31–35, 6:3–7, Figs. 1, 2); Ex. 1409 ¶¶ 133–145).

Petitioner persuasively shows the “interactively selected,” “consecutively displayed” and navigating limitations (“each said portion displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods or programs for which program schedule information has been received”) read on displaying highlighted cursor movements as the cursor moves across the grid of Young ’801. *See* 48Pet. 35–39, 43–47 (citing Ex. 1409 ¶¶ 133–134, 151 (discussing navigating through grid time periods 11:00AM, 11:30AM, and 12:00PM); Ex. 1402, 3:14–17, 4:27–5:3, 11:30–12:26, 13:28–14:5, 13:5–15:1, Figs. 6, 7).

Petitioner contends Young ’801’s system does not display the program guide at the same time (“in overlaying relationship”) as a program, “requir[ing] a viewer who wishes to view schedule information to interrupt viewing a program to view the guide.” 48Pet. 38–39. Petitioner turns to Moro to “teach[] overlaying program information for channels other than the program currently being viewed over a currently tuned and displayed program so that the viewer can continue to view the program while also viewing program information.” 48Pet. 40. According to Petitioner, “Moro thus provides an explicit motivation to modify Young ’801.” *See id.* at 39–

40 (citing Ex. 1403, 3:55–58, Fig. 2 (disclosing superposing character 19B–19E on a television signal of a currently viewed program); Ex. 1409, ¶ 132). According to Petitioner, Moro further teaches “a user can learn about other available programs ‘without interrupting’ the program he/she is currently watching, thereby ‘greatly improving the operating convenience.’” *Id.* at 40 (citing and quoting Ex. 1403, 2:48–52, 5:31–35, 6:3–7).

Petitioner persuasively articulates a reason for modifying Young ’801 as follows:

It would have been obvious to modify Young ’801 to use Moro’s known overlaying technique to overlay program schedule information over a currently tuned and displayed program to allow a viewer to view program information for other channels without interrupting the currently tuned and displayed program as taught by Moro. Moro provides motivation for this predictable result, which merely involves using a known technique to improve similar devices in the same way.

48Pet. 28 (citing Ex. 1409 ¶ 132).

Petitioner provides another reason for the proposed modification:

It would have been apparent that Young ’801’s program guide could be reduced in size to prevent it from obscuring most of the currently tuned and displayed program, and in view of Young ’801’s teaching that “supplemental schedule information is presented in overlays that obscure a minimum amount of useful other information.”

48Pet. 41 (quoting Ex. 1402, 4:15–18; Ex. 1409 ¶ 139).

Petitioner persuasively adds “[t]he prosecution history also shows that it would have been obvious to combine a currently-tuned program and program schedule information with the known partial overlaying technique.” *Id.* (citing Ex. 1409 ¶¶ 135–138). Citing relevant portions of the prosecution history, Mr. Wechselberger persuasively explains “[t]he examiner never changed his position [that] using an overlaying technique was obvious.” Ex.

¶¶ 137, 135–138 (discussing and quoting Ex. 1406, 797, 854, 939, 946–980, 1024–25, 1031). Mr. Wechselberger further explains “[t]oward the end of prosecution,” Applicant amended claims to include a “reminder limitation” in order to overcome the Examiner’s rejections. *Id.* ¶ 138 (citing Ex. 1406, 939, 946–980). Mr. Wechselberger notes further that during prosecution Applicant conceded “the references currently relied on teach or suggest . . . the display of schedule information in an overlay.” *Id.* ¶ 137 (quoting Applicant, Ex. 1406, 1031).

Further regarding the VDG, Petitioner persuasively shows it would have been obvious to replace or modify Young ’801’s VDG 224 and video switcher 226 with Moro’s character generator section 18 to implement the overlay functionality recited in the claims. According to Petitioner, Moro’s “[c]haracter generator section 18 converts character information received from microcomputer 17 and superposes (overlays) the character information onto video signals that are sent to monitor 19 for display.” Pet. 42 (citing Ex. 1403, 3:55–58, Fig. 1).

Petitioner also persuasively contends

it would have been obvious to implement Moro’s character generator section 18 using a video graphics card having an ability to overlay text on a video signal, in view of trends in the television industry to incorporate computer components such as graphics cards, and in view of the knowledge of those of skill in the art. . . . A POSITA would have been motivated by trends in the television industry to incorporate computer components into televisions, and based on the knowledge of a POSITA regarding how to implement such functions.

48Pet. 42–43 (citing Ex. 1409 ¶¶ 144–145); Ex. 1409 ¶¶ 14–16, 144–145 (citing, *inter alia*, Ex. 1415, Abstract (U.S. patent filed in 1985 showing

IPR2017-01148, IPR2017-01149, IPR2017-01150

Patent 6,418,556 B1

merged video including European PAL or NTSC broadcast signals mixed with graphics, titling and any other data)). Regarding such video graphics cards as part of evolving trends, the '556 patent cites a known commercially available video graphics cards as an embodiment of a VDG. Ex. 1401, 8:8–12, 39–42; Ex. 1409 ¶¶ 144–145 (citing Ex. 1415 and admissions in the '556 patent regarding known hardware components).

Petitioner relies on the combination of Young '801, Young '121, Moro, and Strubbe to address the data processing means functions of providing reminder selection messages and interactively controlling the video display generator to display selected portions of program schedule information partially overlaying another display signal and allowing a user issuing commands to navigate through listing information, as set forth in the challenged independent claims, and with respect to claim 5, to provide the program schedule information for a predetermined display period. *See* 48Pet. 43–54 (addressing related clauses “5[F]” and “5[G]”).

As indicated above, Petitioner persuasively relies on Moro to suggest the partial overlay technique and structure to modify Young 801's VDG based on Moro's teachings and/or trends in the industry suggesting video graphics cards, and Petitioner relies on Moro, Strubbe, and Young '121 to modify the data processing means of Young '801, which controls the VDG. *See* 48Pet. 42, 45–48. Petitioner relies on the same or similar motivation as noted above with respect to the VDG and partial overlay technique, and explains further that Young '801's “grid/guide includes program schedule information for multiple channels in addition to the currently-tuned channel (‘another display signal’),” but Young '801 does not show the grid overlaying the currently-tuned channel. *See id.* at 44–45 (citing Ex. 1402, Fig. 2, 13:57, 13:28–30). As to the hardware and algorithmic structure for

part of the recited “data processing means,” Petitioner relies on modifying Young ’801’s CPU 228 (“data processing means”) with Moro’s overlay technique. *See* 48Pet. 44–48. As to interacting with the data processing means, Petitioner cites Young ’801’s video display generator 224 (“video display generator”) and remote controller 212, to generate a grid/guide 24 with interactive program listings for display. *See id.* at 49; Ex. 1402, Fig. 22A.

Regarding “data processing means for receiving said signals in response to said user control commands,” Petitioner relies on Young ’801’s “CPU (‘data processing means’) that receives signals in response to user control commands.” *Id.* at 34 (citing Ex. 1402, Fig. 22A, 27:1–13, 24:17–25; Ex. 1409 ¶ 123 (stating “CPU 228 connect[s] to IFR receiver 264, which receives signals from remote controller 212”). Petitioner also contends “Young ’801 discloses an algorithm for receiving signals in response to commands issued from remote controller 212.” *Id.* at 35 (citing Ex. 1402, 12:15–16 (“SELECT command”), 26:5–10 (“What’s on TV request”).) Petitioner contends “[t]his is the same as or equivalent to the algorithm disclosed in the ’556 Patent.” *Id.* (citing Ex. 1409 ¶ 123).

Petitioner relies on Strubbe to teach a similar partial guide overlay technique to that of Moro, further suggesting reminder messages displayed for a predetermined time and reminder selection messages. *Id.* at 51–52 (citing Ex. 1409 ¶¶ 157–158; Ex. 1410, 6:42–49 (describing a Change B button and PIP (picture in picture) visual reminder displayed 10 seconds before show), 49–50 (addressing reminder messages).

Regarding the display of a signal for a predetermined time, Petitioner persuasively shows “Moro discloses that the displayed program information ‘may be adapted to disappear automatically a predetermined time after

starting [the] display’” (48Pet. 55, quoting Ex. 1403, 5:21–26), and this “would provide the [reminder] information while limiting distractions” (*id.* (citing Ex. 1409 ¶¶ 168–169)). Regarding claim 6, which requires the predetermined time to be adjustable, building on Moro’s “adapted” statement, Petitioner contends

[i]t would further have been obvious to make the predetermined time period adjustable to allow the user to configure, using a command, the predetermined time (“chosen in response to a user control command”) for displaying the program listings. (Ex-1409, ¶169.) It was known that many predetermined values could be adjustable/user-configurable, thereby providing a customized and improved user experience. (MPEP § 2144.04 (“making adjustable”); Ex-1409, ¶169.) Young ’801 even describes several adjustable or customizable options including the display of program notes and titles. (Ex-1402, 15:8–16, Fig. 11.).

Pet. 55–56 (internal footnote omitted).

Regarding reminder messages, in addition to Strubbe, Petitioner relies on Young ’121’s disclosure of selecting a program from a program guide to create and superimpose the reminder message (name of a TV program) to remind the user of the selected program. 48Pet. 50 (citing (Ex. 1411, 15:19–16:41, 20:39–46)). For a reason to combine, Petitioner persuasively contends “[a] POSITA would have been motivated to add this reminder functionality to prevent users from missing desired television programs, thereby improving the user experience with the program guide.” *Id.* at 50 (citing Ex. 1409 ¶ 155). Petitioner adds “Young’121 also teaches the desirability to eliminate manual selections and allow all programs to be selected from a guide.” *Id.* (citing Ex. 1411, 3:21–24).

Petitioner concedes “Young ’121 . . . arguably does not teach using ‘reminder selection messages’ to set up the reminder.” *Id.* at 51. Petitioner

turns to Strubbe as follows:

Strubbe's reminder selection messages allow the user to select commands for selecting a reminder for a future program. Strubbe discloses that pressing the Change B button allows a user to enter selection commands to set the type of reminder that is to be displayed at a specific time (e.g., five minutes) before the start of a program.

48Pet. 51 (citing Ex. 1410, 6:42–49; Ex. 1409 ¶ 157).

In Strubbe, after a user selects “favorite broadcast programs” to place in a Future Program menu, the menu delivers an option to select a reminder message, with option B used to adjust the type of reminder, at least suggesting adjusting the time of the reminder message displayed before the start of the program. See Ex. 1410, 5:20–50, Figs. 6a, 6b, 8a, 8b, 8c, 8d.

Regarding a reason to combine the teachings of Young '801, Moro, and Young '121 with reminder selection messages as suggested by Strubbe, Petitioner contends it would “allow a user to customize the reminder” of the Young '801-Moro-Young '121 combination.

48Pet. 51–52 (citing Ex. 1409 ¶ 158). Petitioner further explains

[a] POSITA would have recognized that program guide systems (like Young '801's system) were intended for a large number of users with various preferences. . . . And, Young '121 teaches the desirability of setting reminders from a program guide. Thus, a POSITA would have looked to improve flexibility of various aspects of Young '801's system, including when and/or how reminder messages are provided.

Id. at 52 (citing Ex. 1409 ¶ 158).

Petitioner contends these modifications satisfy the algorithmic structure of function [c], noting Young '121 and Strubbe suggest similar structure for providing the functionality for the reasons explained above. See *id.* at 52–53 (citing Ex. 1411, 16:18–23;

Ex. 1410, 6:25–45; Ex.1409 ¶ 158). In other words, according to Petitioner, the modified algorithmic structure of Young ’801’s programming guide involves providing a reminder selection message to a chosen future program by storing a reminder message in memory and then displaying it at a predetermined time, as Moro, Young ’121, and Strubbe reasonably suggest. *See, e.g., id.* at 58–63 (discussing, *inter alia*, modifying the algorithmic structure of Young ’801 corresponding to second reminder selection messages as set forth in dependent claim 8, and relying on similar reasons presented with respect to claim 5).

As another example of motivation, according to Petitioner “Young ’121 provides motivation for overlaying reminder messages because it teaches displaying a reminder/alarm by superimposing the name of the program, for which the reminder was scheduled, over another display signal as a subtitle on a TV screen.” Pet. 54 (citing Ex. 1411, 16:38–41, 20:43–46, FIG. 13 (step 508)). Petitioner cites Figure 14a of Strubbe, which discloses an example of reminder overlay (PIP) message, as reproduced below:

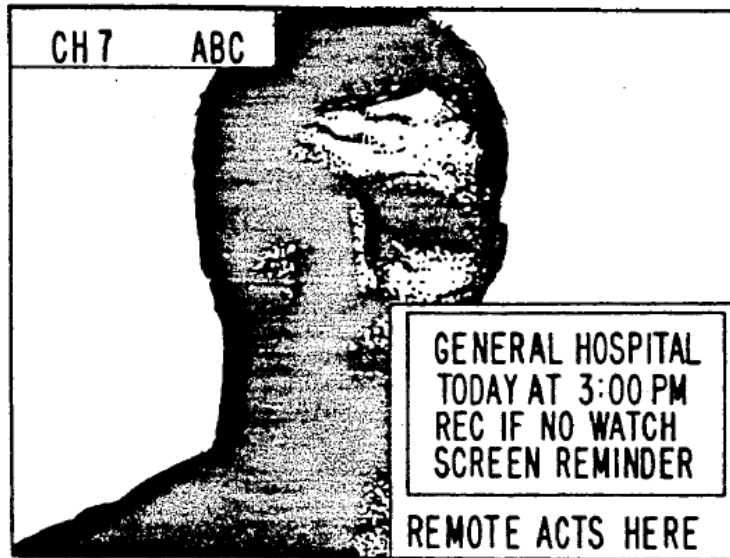


FIG. 14a

Id. at 53 (reproducing Fig. 14a of Strubbe). Figure 14a above shows an overlay screen reminder message indicating “GENERAL HOSPITAL TODAY AT 3:00 PM)” overlaying a television show on channel 7 “ABC.”

Petitioner summarizes the motivation for providing reminder selection and reminder messages as follows:

It would have been obvious to modify the Young ’801-Moro-Young ’121 combination to display reminder selection messages and reminder messages as taught by Strubbe so the user could customize reminders and be alerted to an upcoming program. . . . It also would have been obvious to display the reminder messages in an overlaying relationship as taught by Strubbe, Moro, and Young ’121 so that the user could be alerted to an upcoming program while also watching a current program.

48Pet. 54 (citing Ex. 1409 ¶163).

Relying further on the testimony of Mr. Wechselberger and the prior art as summarized above, Petitioner makes a detailed showing with respect to claim 5 and with respect to the remaining challenged claims. See 48Pet. 25–97.

Claims 6–10 depend from claim 5. Claim 6 requires the predetermined display period to be user-selectable. Petitioner points to Moro’s teaching that “the displayed program information ‘may be adapted to disappear automatically a predetermined time after starting display.’” 48Pet. 55 (citing Ex.1403, 5:21–26). Petitioner contends based on this teaching, and teachings in Young ’801 generally related to adjustable and customizable options, an artisan of ordinary skill “would have appreciated that displaying program information for a predetermined time period, as shown in Moro, would provide the information while limiting distractions,” and that making the time period user adjustable would have been obvious in order to provide “a customized and improved user experience.” Pet. 55–56 (citations omitted).

Claim 7 depends from claim 5 and recites “said schedule information displayed by said video display generator comprises at least program title and program channel.” Petitioner points to Young 801’s Figure 1 as displaying title and channel information. *Id.* at 57.

Claim 8 depends from claim 5 and requires a second set of reminder selection messages “in at least one further mode of operation” and to include a predetermined display period for a reminder message to be user-selectable. Petitioner relies on Young ’801’s teachings of providing program information in multiple viewing modes (e.g., a grid 24 for a single channel and a program list 58). Pet. 59 (citing Ex. 1402, 14:6–29, Fig 8). Petitioner contends providing the reminder selection and message functionality suggested by Moro (as discussed above in connection with claim 5) and Strubbe would have been obvious for the purpose of selecting the same function from a related viewing mode in order to provide adjustable reminders for more than one program in a convenient fashion. *See* Pet. 58–

63 (citations omitted, relying on similar reasons indicated above with respect to claim 6).

Claim 9 depends from claim 5 and requires reminder messages to be displayed in a partial overlaying relationship “with said another display signal.” Petitioner relies on Strubbe’s Figure 14A, which shows a partial overlaying reminder message on channel 7, and similar overlaying messages in Figures 11a and 11b. Pet. 64. Petitioner points to similar teachings of partial overlays in Moro and Young ’121, and contends a partial overlay would have been obvious “so that the user would have been alerted to an upcoming program with minimal interruption of the program the user was watching.” *Id.* at 65 (citing Ex.1409 ¶ 183).

Claim 10 depends from claim 5 and requires “said another display signal” to be “a television display signal.” Petitioner contends “Moro clearly teaches displaying program information superimposed over a television program.” *Id.* at 66 (citing Ex. 1403, 5:6–9, Fig. 2; Ex. 1409 ¶ 186). Petitioner contends claim 10 would have been obvious over the combination of references because “the viewer would have been able to watch a television program while viewing program information for other channels.” *Id.* at 67 (citing Ex. 1409 ¶ 186, reproducing Figure 2 of Moro). As Petitioner contends, Moro teaches such partial overlays “greatly improve[e] the operating convenience” “without interrupting” the viewed program. *Id.* at 40 (quoting Ex. 1403, 2:48–52, 6:6:3–7).

Petitioner makes similar showings for the remaining challenged claims. Petitioner points out independent claims 5, 15, 29, 34, 41–43 recite similar limitations and provides charts addressing the similarities and differences. *See* 48Pet. 67–74, 76–78, 81–92. Petitioner shows that the remaining challenged claims recite similar limitations to those addressed

above with respect to claims 6–10 and/or recite well-known television program guide and remote control features. *See* 48Pet. 71–72 (claim 17), 72 (claim 18), 74–75 (claims 31–32), 79–81 (claims 35–38), 92–94 (claims 44–48).

With respect to claim 17, Petitioner relies partly on its showing for claim 15 (which in turn tracks claim 5). *See* 48Pet. 67–71. Claim 17 recites “said navigation including deleting at least one program listing appearing in the overlay and adding at least another program,” and Petitioner notes claim 15 does not recite that limitation. *See id.* at 71–72. Petitioner reads that limitation on Young ’801’s page limitation, asserting “Young ’801 allows the user to ‘page’ through program listings, which replaces one page of listings with another, thereby causing at least one program listing appearing in the overlay to be listing in the overlay.” *See id.* (citing Ex. 1402, 13:5–16; Ex. 1409 ¶ 188).

With further respect to claims 41–43, as noted above, Petitioner relies partly on its showing with respect to claim 5, and also points out claim limitation differences, reading the limitations primarily on Young ’801. *See id.* at 81–92. For example, Petitioner states “instead of displaying program schedule information,” as claim 5 recites, claim 41 “requires displaying schedule information **for a currently tuned channel.**” *Id.* at 83. Petitioner reads this limitation on Young ’801’s teaching of displaying schedule information for a currently tuned channel on the top line of Figure 1. *Id.* at 81 (citing Ex. 1602, 13:5–7, Fig. 1; Ex. 1609 ¶ 205).

In light of the record, including considering Patent Owner’s arguments summarized below, Petitioner shows by a preponderance of evidence that the subject matter of challenged claims 5–10, 15, 17, 18, 29, 31, 32, 34–38, and 41–48 would have been obvious over the combination of

Young '801, Young '121, Strubbe, and Moro. We agree with Petitioner's persuasive showing detailed above and as further illustrated in the Petition.

9. 49IPR, Young '801, Young '121, Strubbe, and Reiter

Petitioner persuasively shows that claims 5–10, 15, 17, 18, 29, 31, 32, 34–38, and 41–48 of the '556 patent are unpatentable under 35 U.S.C. § 103(a) based on Young '801, Strubbe, Young '121, and Reiter. 49Pet. 12. Petitioner also relies on the declaration testimony of Mr. Wechselberger (Ex. 1509). Petitioner contends the “Petition presents Young '121 in a new light” relative to the prosecution history of the '556 patent. *Id.* at 23. The Petition also provides a summary of the prosecution history persuasively showing, as a whole, the Petition presents arguments and evidence in the 49Petition not considered by the Examiner during prosecution of the '556 patent. *See id.* at 21–23 (citing Ex. 1506; 1509).

Petitioner persuasively reads most of the claim limitations recited in independent claim 5 on Young '801's interactive menu system. *See id.* at 30–51. Petitioner reads the electronic programming guide preamble on Young '801's programming guide at Figure 6, and on Young 801's video display 210 and television schedule grid 24. *Id.* at 25–26, 30 (citing Ex. 1502, 12:27–32, 14:30–15:2, Figs. 1, 10, 22B; Ex. 1509 ¶¶ 109–112).

Petitioner persuasively reads the “means for receiving television program schedule information” on Young '801's TV tuner 202, which receives program schedule information in a VBI (vertical blanking interval). *Id.* at 31 (citing Ex. 1502, 25:16–25, Fig. 22A (element 202); Ex. 1509 ¶ 113). Young '801 discloses storing listing data, cable channel assignment data, and other schedule data in memory, to be retrieved later for display. *See* Ex. 1502, 25:26–34, 26:5–10.

Petitioner persuasively reads the “user control means” for issuing

commands and transmitting signals on Young '801's remote controller 212. 49Pet. 31–32 (citing Ex. 1502, 10:6–9, 13:28–34, 24:17–33, 26:5–21, 27:1–13, Fig. 21; Ex. 1509 ¶¶ 114–116); Ex. 1502, Figs. 21, 22A (remote controller 212).

Petitioner persuasively reads the “data processing means for receiving signals in response to said user control commands” on Young '801's “CPU 228 connected to IFR receiver 264, which receives signals from remote controller 212” and Young's algorithm for receiving signals in response to remote controller commands. *Id.* at 33 (citing Ex. 1502, 12:15–16, 24:17–25, 26:5–10, 27:1–13, Fig. 22A; Ex. 1509 ¶ 117).

Petitioner persuasively reads the VDG (and recited functions) partially on Young '801's VDG 224, which receives commands from CPU 228 (data processing means) and tuner 202 (part of receiving means). *See id.* at 33–40. Petitioner employs teachings of Reiter, including Reiter's mixer 70, to modify or replace Young 801's VDG, as explained further below. *See id.* (citing *inter alia*, Ex. 1504, 5:2–15, Fig. 2); Ex. 1509 ¶¶ 125–134).

Petitioner alternatively relies on industry trends and knowledge of an ordinarily skilled artisan regarding a video graphics card. Pet. 39–40 (citing Ex. 1509 ¶ 130). As set forth in the claim construction section on the Institution Decisions, the '556 patent states VGA-types graphics cards were commercially available at the time of the invention. *See supra* 48Inst. Dec. 15–22; 49Inst. Dec 12; 50Inst. Dec 12; Ex. 1501, 8:10–12, 40–42; Ex. 1509 ¶¶ 130–131 (relying on known partial overlay technique), ¶ 133 (arguing Patent Owner admitted the technique of an overlay of schedule was known during prosecution (citing Ex. 1506, 1031), ¶¶ 14–17 (discussing industry trends)).

Petitioner contends Young '801's system does not display the "program guide" at the same time ("in overlaying relationship") as a program, "requiring a viewer who wishes to view program schedule information to interrupt viewing a program to view the guide." 49Pet. 36–37.¹⁴ Petitioner turns to Reiter to teach displaying the television schedule information in a partial overlay format so that "the viewer may continue to view the television program he is currently watching." *Id.* at 25–26 (citing Ex. 1504, quoting 6:29–38, citing 3:13–26 ("the viewer could demand to see subsets of information" as "an overlay," "a window," or "as a full screen display")). Petitioner contends "Reiter also teaches that a viewer may request television programming scheduling, and may choose between an overlay or full screen display to output the requested information." *Id.* at 26 (citing Ex. 1504, 4:40–5:22).

Petitioner relies on the combination of Young '801, Young '121, Reiter, and Strubbe to address the data processing means functions of providing reminder selection messages and interactively controlling the video display generator to display selected portions of program schedule information partially overlaying another display signal and allowing a user issuing commands to navigate through listing information, as set forth in the challenged independent claims, and further with respect to claim 5, to provide the program schedule information for a predetermined display period. *See id.* at 40–51 (addressing related clauses "5[E]" and "5[F]").

¹⁴ As noted in the Institution Decision (49Inst. Dec. 23 n.5), "Young '801 appears to display an overlay involving information about a single television program being currently viewed. *See* Ex. 1502, Figs. 9–11. Young '801 provides other partial overlays. *See id.* at Fig. 6 (overlay 52); Fig. 12 (recording message overlay)." Patent Owner does not dispute this finding.

As indicated above, Petitioner relies on Reiter and/or trends in the industry to suggest the partial overlay technique and structure to modify Young '801's VDG. Petitioner relies on Reiter, Strubbe, and Young '121 to modify the data processing means of Young '801, which controls the VDG. *See* Pet. 33–51. In addition to the reasons stated above for modifying Young '801's VDG to include the partial overlay technique, those reasons apply to modifying the data processing means, which controls the VDG. *See* 49Pet. 41–44. Petitioner adds “[i]t would have been apparent that Young '801's program guide could be reduced in size to prevent it from obscuring most of the currently tuned and displayed program.” *Id.* at 39 (citing Ex. 1509 ¶126; Ex. 1502, 4:15–18). At the cited passage, Young '801 teaches an object of the invention includes “provid[ing] a user interface in which supplemental schedule information is presented in overlays that obscure a minimum amount of useful other information.” Ex. 1502, 4:15–18. Young '801 also shows single lines of information for a current television at Figures 9 and 10, and states another object of the invention as providing “customizable” schedule information based on “user preferences.” Ex. 1502, 4:19–22.

Petitioner adds “[t]he prosecution history also shows that it would have been obvious to combine a currently-tuned program and program schedule information with the known partial overlaying technique.” 49Pet. 39 (citing Ex. 1509 ¶¶ 131–134). Citing relevant portions of the prosecution history, Mr. Wechselberger explains “[t]he examiner never changed his position [that] using an overlaying technique was obvious.” Ex. 1509 ¶¶ 132, 131–134 (discussing and quoting Ex. 1506, 797, 854, 1024–25). Mr. Wechselberger further explains “[t]oward the end of prosecution,” Applicant amended claims to include a “reminder limitation” in order to overcome the Examiner's rejections. *Id.* ¶ 134 (citing Ex. 1506, 939, 946–980). Mr.

Wechselberger notes further that during prosecution Applicant conceded “the references currently relied on teach or suggest . . . the display of schedule information in an overlay.” *Id.* ¶ 133 (quoting Applicant, Ex. 1506, 1031).

As the hardware and algorithmic structure for part of the recited “data processing means,” Petitioner relies on modifying Young ’801’s CPU 228 (“data processing means”) as modified by Reiter’s partial overlay technique. *See* 49Pet. 42–44. Petitioner generally cites Young ’801’s video display generator 224 (“video display generator”) and remote controller 212, to generate a grid/guide 24 with interactive program listings for display based on the modified data processing means of Young ’801 to control the process. *See at* 43; Ex. 1502, Fig. 22A.

With respect to the “data processing means” function of “being adapted to control said video display generator with said video control commands in response to said user control commands to display for a predetermined display” a partial overlay, according to claim 5, Petitioner relies partially on Young ’801’s “CPU 228 (‘data processing means’)” that receives signals in response to user control commands and controls VDG 224 to generate grid/guides 24 on television/monitor 210. *Id.* at 41–43 (citing Ex. 1502, 26:5–10, Fig. 2; Ex. 1509 ¶¶ 136, 138–139).

Petitioner relies on Strubbe to suggest a similar partial overlay technique to that of Reiter, with Strubbe also teaching displaying information for a predetermined time and including reminder selection messages. *Id.* at 42–45 (citing Ex. 1504, 6:13–18; Ex. 1509 ¶ 138–130; Ex. 1510, 6:42–49 (describing a Change B button and PIP (picture in picture) visual reminder displayed 10 seconds before show), 45–51 (addressing reminder and reminder selection messages). Petitioner also relies on

suggestions in Young’121 with respect to reminders: “Young teaches displaying a reminder/alarm by superimposing the name of the program, for which the reminder was scheduled, onto a TV screen as a subtitle.” *See id.* at 62 (citing (Ex. 1511, 16:38–41, 20:43–46, Fig. 13 (step 508))).

Petitioner cites Figure 6b of Strubbe (reproduced above in a previous section) as an example of a reminder selection message. Petitioner cites Figure 14a of Strubbe (reproduced below) as an example of reminder overlay message:

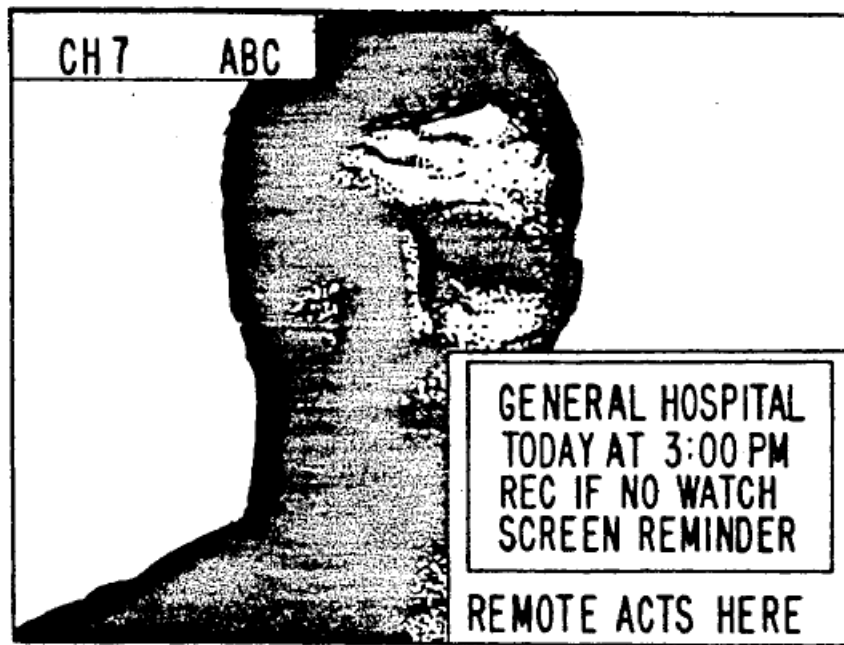


FIG. 14a

Id. at 50 (reproducing Fig. 14a of Strubbe). Figure 14a above shows an overlay screen reminder message indicating “GENERAL HOSPITAL TODAY AT 3:00 PM” overlaying a television show on channel 7 “ABC.”

Regarding motivation with respect to reminder selection messages and a reminder message for a predetermined time, Petitioner contends

[i]t would have been obvious to modify the Young ’801-Reiter-Young ’121 combination in view of Strubbe to include

reminder selection messages to allow a user to customize the reminder. . . . This modification entails using a known technique (Strubbe's reminder selection messages) to improve a similar system (Young '801's program guide with Young '121's reminder functionality). A POSITA would have recognized that program guide systems, such as Young '801's system, were intended for a large number of users with various preferences. . . . And, Young '121 teaches the desirability of setting reminders from a program guide. Thus, a POSITA would have looked to improve flexibility of various aspects of Young '801's system, including when and/or how reminder messages are provided.

49Pet. 48–49 (citing Ex. 1509 ¶148).

Petitioner also relies on Young '121's disclosure of selecting a program from a program guide to create and superimpose the reminder message (name of a TV program) to remind the user of the selected program. *See id.* at 51 (citing Ex. 1511, 16:38–41, 20:43–46, Fig. 13 (step 508)). Petitioner contends “[a] POSITA [person of ordinary skill in the art] would have been motivated to add this reminder functionality to prevent users from missing desired television programs, thereby improving the user experience with the program guide.” *Id.* at 47 (citing Ex. 1509 ¶ 145). Petitioner adds “Young'121 also teaches the desirability to eliminate manual selections and allow all programs to be selected from a guide.” *Id.* (citing Ex. 1511, 3:21–24).

Petitioner concedes “Young '121 . . . arguably does not teach using ‘reminder selection messages’ to set up the reminder.” *Id.* at 47. As noted above, Petitioner turns to Strubbe to suggest reminder selection messages:

Strubbe's reminder selection messages allow the user to select commands for selecting a reminder for a future program. Strubbe discloses that pressing the Change B button allows a user to enter selection commands to set the type of reminder that is to be displayed at a specific time (e.g., five minutes) before the start of a program.

49Pet. 48 (citing Ex. 1510, 6:42–49; Ex. 1509 ¶ 147).

In Strubbe, after a user selects “favorite broadcast programs” to place in a Future Program menu, the menu delivers an option to select a reminder message, with option B used to adjust the type of reminder at least in terms of the time displayed before the program. *See* Ex. 1510, 5:29–50, Figs. 6a, 6b, 8a, 8b, 8c, 8d.

In addition to reasons discussed above for using reminder selection messages as suggested by Strubbe, Petitioner contends it would have been obvious “so the user could customize reminders and be alerted to an upcoming program” of the Young ’801-Reiter-Young ’121 combination. 49Pet. 51 (citing Ex. 1509 ¶ 152). Petitioner adds Reiter suggests providing information as an overlay “so the viewer can continue to view a television program.” *Id.* (citing Ex. 1504, 6:29–38.)

Petitioner contends these modifications satisfy the algorithm in function [c] of the data processing means in the challenged claims, contending Young ’121 and Strubbe provide algorithmic structure similar to the disclosed structure for providing reminder and reminder selection messages. *See id.* at 49–50 (citing Ex. 1511, 16:18–23; Ex. 1510, 6:25–45; Ex. 1509 ¶ 148). In other words, as set forth in the claim construction section as set forth in the institution decision of the 48IPR, the disclosed algorithm involves providing a reminder selection message for a chosen future program, storing a reminder message in memory, and displaying the message at the predetermined time prior to the future program, which the combination reasonably suggests for the purposes of institution. *See* 48Inst. Dec. Section II.A.4; 49Inst. Dec. 11 (relying on the claim construction as set forth in the 48Inst. Dec.)

Based on the foregoing discussion and a review of the record, Petitioner has shown by a preponderance of the evidence that claim 5 would have been obvious in view of the teachings of the asserted combination of references. *See* 49Pet. 23–51. Petitioner also shows by a preponderance of the evidence that the remaining challenged claims would have been obvious. *See* 49Pet. 52–92.

Claims 6–10 depend from claim 5. Claim 6 requires the predetermined display period to be user-selectable. Petitioner points to Strubbe’s teaching for providing a predetermined time period and Young ’801’s teaching of several adjustable or customizable options including the display of program notes and titles. 49Pet. 52–53 (citing Ex. 1502, 15:8–16, Fig. 11; Ex. 1510, 6:45–49, 8:21–24, 10:6–14; Ex. 1509 ¶¶ 157–158). Petitioner contends based on these combined teachings, an artisan of ordinary skill would have appreciated that displaying program information for a predetermined time period would limit distractions and provide convenience to a user while providing reminder information so a user will not miss a desired program. *See id.* at 52–54.

Claim 7 depends from claim 5 and recites “said schedule information displayed by said video display generator comprises at least program title and program channel.” Petitioner points to Young 801’s Figure 1 as displaying title and channel information. *Id.* at 54–55.

Claim 8 depends from claim 5 and requires a second set of reminder selection messages “in at least one further mode of operation” and to include a predetermined display period for a reminder message to be user-selectable. Petitioner relies on Young ’801’s teachings of providing program information in multiple viewing modes (e.g., a grid 24 for a single channel and a program list 58). *Id.* at 55–60 (citing Ex. 1502, 14:6–29, Figs. 7, 8,

20) (discussing toggling between a single channel listing 58 and a program list 24). Petitioner relies on Young '121's teaching for reminder selection functionality and Strubbe's teaching for adjustable reminder selections as suggesting adjustable time periods, referring to an "example" of "five minutes before the start time." *Id.* at 59 (quoting Ex. 1510, 6:42–49; citing Ex. 1511, 15:19–16:41, 20:39–46; Ex. 1509 ¶ 167). Petitioner contends based on the combined teachings that it would have been obvious to provide second reminder messages and user-adjustable reminder times for the purpose of selecting the same function from a related viewing mode in order to provide adjustable reminders for more than one program in a convenient fashion. *See id.* at 58–60 (citations omitted, relying on similar reasons indicated above with respect to claim 6).

Claim 9 depends from claim 5 and requires reminder messages to be displayed in a partial overlaying relationship "with said another display signal." Petitioner relies on Strubbe's Figure 14A, which shows a partial overlaying reminder message on channel 7, and similar overlaying messages in Figures 11a and 11b. *Id.* at 62. Petitioner points to similar teachings of partial overlays in Reiter and Young '121, and contends a partial overlay would have been obvious "so that the user would have been alerted to an upcoming program with minimal interruption of the program the user was watching." *Id.* at 62 (citing Ex. 1509 ¶ 170).

Claim 10 depends from claim 5 and requires "said another display signal" to be "a television display signal." Petitioner contends Reiter and Young '801 each teaches displaying program information superimposed over a television program. *Id.* at 63 (citing Ex. 1502, 14:30–32, Fig. 1; Ex. 1504, 6:29–38). Petitioner contends claim 10 would have been obvious over the combination of references because "the viewer would have been

able to watch a television program while viewing program information for other channels.” *Id.* (citing Ex. 1509 ¶ 171). As Petitioner contends, Reiter teaches such partial overlays allow a user to continue to watch a television program. *Id.* (citing Ex. 1504, 6:29–38).

Petitioner makes similar showings for the remaining challenged claims. Petitioner points out independent claims 5, 15, 29, 34, 41–43 recite similar limitations and provides charts addressing the similarities and differences. *See* 49Pet. 63–70, 72–73, 77–86. Petitioner shows that the remaining challenged claims recite similar limitations to those addressed above with respect to claims 6–10 and/or recite well-known television program guide and remote control features. *See* 49Pet. 67–68 (claims 17–18), 70–71 (claims 31–32), 74–76 (claims 35–38), 87–90 (claims 44–48).

With further respect to claim 17, Petitioner relies on its showing for claim 15 (which in turn tracks claim 5). *See id.* at 67–68. Claim 17 recites “said navigation including deleting at least one program listing appearing in the overlay and adding at least another program,” and Petitioner notes claim 15 does not recite that limitation. *Id.* Petitioner reads that limitation on Young ’801’s page limitation, asserting “Young ’801 allows the user to ‘page’ through program listings, which replaces one page of listings with another, thereby causing at least one program listing appearing in the overlay to be listing in the overlay.” *See id.* (citing Ex. 1502, 13:5–16; Ex. 1509 ¶ 173.)

With further respect to claims 41–43, as noted above, Petitioner relies partly on its showing with respect to claim 5, and also points out claim element differences, reading the elements primarily on Young ’801. *See id.* at 77–87. For example, Petitioner states “instead of displaying program schedule information,” as claim 5 recites, claim 41 “requires displaying

schedule information **for a currently tuned channel.**” *Id.* at 78. Petitioner reads this limitation on Young ’801’s teaching of displaying schedule information for a currently tuned channel on the top line of Figure 1. *Id.* at 79 (citing Ex. 1502, 13:5–7, Fig. 1; Ex. 1509 ¶ 195).

In light of the record, including considering Patent Owner’s arguments summarized below, Petitioner shows by a preponderance of evidence that the subject matter of challenged claims 5–10, 15, 17, 18, 29, 31, 32, 34–38, and 41–48 would have been obvious over the combination of Young ’801, Young ’121, Strubbe, and Reiter. We adopt Petitioner’s persuasive showing, as summarized above and also as set forth in the Petition, as our own.

10. 50IPR, Young ’801, Young ’121, Strubbe, and Remillard

Petitioner persuasively contends that claims 5–10, 15, 17, 18, 29, 31, 32, 34–38, and 41–48 of the ’556 patent are unpatentable under 35 U.S.C. § 103(a) based on Young ’801 (Ex. 1602), Remillard (Ex. 1605), Young ’121 (Ex. 1611), and Strubbe (Ex. 1610). 50Pet. 12. In its summary and analysis, Petitioner also relies on purported Applicant Admitted Prior Art (“AAPA”), which we address further below. *See* 50Pet. 12, 22, 26–33.¹⁵

¹⁵ Petitioner contends that the description of commercially available components used to implement the video display generator (“VDG”) and overlay technique described in the ’556 patent (Ex. 1601, 8:3–48) constitutes AAPA that can be relied on for obviousness determinations. *See* Pet. 22 (citing MPEP § 2129, Ex. 1609 ¶¶ 108–110). According to the ’556 patent, the VDG includes a commercially available VGA-type graphics card employed in the invention. *See* Ex. 1601, 8:3–48; Pet. 12, 22, 26–33.

Petitioner also relies on the declaration testimony of Mr. Wechselberger (Ex. 1609). Petitioner persuasively contends the “Petition presents Young ’121 in a new light” relative to the prosecution history of the ’556 patent because the Examiner did not rely on it for selecting a reminder function or in any of the combinations at issue here. *See* 50Pet. 24. Petitioner provides a persuasive summary of the prosecution history showing, as a whole, that the Petition presents arguments and evidence not considered by the Examiner during prosecution of the ’556 patent. *See* 50Pet. 23–24 (citing Ex. 1606; Ex. 1609).

Petitioner persuasively reads most of the claim limitations recited in independent claim 5 on Young ’801’s interaction menu system. *Id.* at 33–54. Petitioner reads the electronic programming guide preamble on Young ’801’s “screen television program listings” as displayed on video display 210 and television schedule grid 24. 50Pet. 33 (citing Ex. 1602, 12:27–32, 14:30–15:2, Figs. 1, 10; Ex. 1609 ¶¶ 113–116).

Petitioner persuasively reads the “means for receiving television program schedule information” on Young ’801’s TV tuner 202, which receives program schedule information in a VBI (vertical blanking interval). *Id.* at 34 (citing Ex. 1602, 25:16–25, Fig. 22A; Ex. 1609 ¶ 117). Young ’801 discloses storing listing data, cable channel assignment data, and other schedule data in memory, to be retrieved later for display. *See* Ex. 1602, 25:26–34, 26:5–10.

Petitioner persuasively reads the “user control means” for issuing commands and transmitting signals on Young ’801’s remote controller 212. 50Pet. 34–35 (citing Ex. 1602, 10:6–9, 13:28–34, 26:5–10, 27:1–13, Fig. 21; Ex. 1609 ¶¶ 118–120); Ex. 1602, Fig. 22A (remote controller 212).

Petitioner persuasively reads the “data processing means for receiving said signals” on Young ’801’s “CPU 228 connected to IFR receiver 264, which receives signals from remote controller 212” and its algorithm for receiving signals. 50Pet. 36 (citing Ex. 1602, 12:15–16, 26:5–10, 24:17–25, 27:1–13, 24:17–25, Fig. 22A; Ex. 1609 ¶¶ 121, 122); Ex. 1602, Fig. 22A (remote controller 212).

Petitioner contends Young ’801’s system does not display the program guide at the same time (“in overlaying relationship”) as a program, “requiring a viewer who wishes to view program schedule information to interrupt viewing a program to view the guide.”¹⁶ 50Pet. 39–40. Petitioner contends Remillard “discloses overlaying interaction menus on a portion of a television broadcast.” *Id.* at 40 (citing Ex. 1605, 2:63–3:1, 5:55–61). As reproduced above and as Petitioner contends, Figure 3 of Remillard “shows the interaction menu overlaid on a portion of a television broadcast.” *Id.* at 40. According to Petitioner’s persuasive reasoning, a “POSITA would appreciate that overlaying a menu over all of the television screen allows for the display of a larger menu or a menu with more options, whereas displaying the menu on a portion of a television broadcast allows the viewer to continue to view the television broadcast while interacting with the menu.” *Id.* at 40–41 (citing Ex. 1609 ¶¶ 130–131).

In addition to contending that a person of ordinary skill in the art POSITA would have been motivated to combine the two functions of

¹⁶ Young ’801 also discloses “channel grazing overlays 64 and 66 that provide information on current programs when switching channels while watching television.” See Ex. 1602, 14:30–32, Figs. 9–11. Young ’801 provides other partial overlays of program guide information. See *id.* at Fig. 6 (overlay 52); Fig. 12 (recording message overlay).

viewing and interacting so that a user could view the program without interruption while interacting with the guide, Petitioner persuasively shows the structure for implementing the modification, including the VDG and data processor structure, was well known:

The '556 Patent admits that the claimed system can be implemented using known parts, such as an IBM computer, and states that the particular implementation details are “not the subject of the present invention.” (Ex-1601, 8:37–48.)

The '556 Patent describes implementing the video display generator with “a commercially available VGA-type graphics card, such as a Rocgen card manufactured by Roctec.” (Ex-1601, 8:11–12.) This shows that use of an existing video display generator to perform overlay was known and the video display generator was even commercially available. (Ex.-1609, ¶¶136–138.)

It would have been obvious to modify Young '801 to allow the currently tuned program and program schedule information to be displayed simultaneously in view of Remillard. (Ex-1609, ¶132.) It would have been obvious to use the known overlaying technique disclosed in Remillard and AAPA to partially overlay an interactive menu, including interactively-selected portions of schedule information for a currently-tuned channel and interactively-selected portions of schedule information for programs on channels different from the currently-tuned channel (both scenarios taught by Young '801), over a display signal currently appearing on the tuned channel to allow a viewer to view the program information without interrupting the currently tuned and displayed program. (Ex-1609, ¶132.) Such a modification merely includes use of a known technique (Remillard and AAPA) to improve similar devices and methods (Young '801) in the same way. (Ex-1609, ¶132.)

Petitioner provides other reasons for making the combination involving Remillard’s partial overlay of information, including in view of “Young ’801’s statement that ‘supplemental schedule information is presented in overlays that obscure a minimum amount of useful other information. (Ex-1602, 4:15–18.)” *Id.* at 42–43. Petitioner also contends “[t]he video display generator of the AAPA is the example described in the ’556 Patent and therefore meets any conceivable construction of video display generator.” *Id.* at 43 (citing Ex. 1609 ¶ 138).

Petitioner adds “[t]he prosecution history also shows that it would have been obvious to combine a currently-tuned program and program schedule information with the known partial overlaying technique.” 50Pet. 43 (citing Ex. 1609 ¶¶ 139–142). Citing relevant portions of the prosecution history, Mr. Wechselberger explains “[t]he examiner never changed his position [that] using an overlaying technique was obvious.” Ex. 1609 ¶¶ 140, 139–142 (discussing and quoting Ex. 1606, 797, 854, 1024–25). Mr. Wechselberger further explains “[t]oward the end of prosecution,” Applicant amended claims to include a “reminder limitation” in order to overcome the Examiner’s rejections. *Id.* ¶ 142 (citing Ex. 1606, 939, 946–980). Mr. Wechselberger notes further that during prosecution, Applicant conceded “the references currently relied on teach or suggest . . . the display of schedule information in an overlay.” *Id.* ¶ 141 (quoting

¹⁷ As noted above, AAPA refers to disclosures in the ’556 patent about the VDG, including a description of a commercially available VGA-type graphics card as an embodiment of the disclosed invention. See 50Pet. 41 (citing Ex. 1601, 8:11–12; Ex. 1609 ¶¶ 136–138), 43 (citing Ex. 1609 ¶¶ 137–138).

Ex. 1606, 1031 (Applicant's Response to Office Action)).

Petitioner relies on the combination of Young '801, Young '121, Remillard, and Strubbe to address the data processing means functions of providing reminder selection messages and interactively controlling the video display generator to display selected portions of program schedule information partially overlaying another display signal and allow a user issuing commands to navigate through listing information, as set forth in the challenged independent claims, and with respect to claim 5, to provide the program schedule information for a predetermined display period. *See* 50Pet. 36–48 (addressing related clauses “5[E]” and “5[F]”).

As indicated above, Petitioner relies on Remillard (and/or known VGA-type graphics card structure) to suggest the partial overlay technique and structure using known video display generators to modify the algorithmic structure of Young '801. *See id.* at 41–48. As hardware and algorithmic structure, Petitioner relies on modifying Young '801's CPU 228 (“data processing means”) with Remillard's overlay technique. *See id.* at 35–36. Petitioner notes Young '801 discloses video display generator 224 (“video display generator”), program listing information (citing guide at Figure 2 of Young '801), IFR receiver 264, tuner 202 and decoder 22 as (“receiving means”), and remote controller 212. *See id.* at 35–37.

Further regarding “data processing means for receiving said signals in response to said user control commands,” Petitioner contends “Young '801 discloses an algorithm for receiving signals in response to commands issued from remote controller 212. (Ex-1602, 12:15–16 (‘SELECT command’), 26:5-10 (‘What's on TV request’).) This is the same as or equivalent to the algorithm disclosed in the '556 Patent. (Ex-1609, ¶122.)” 50Pet. 36.

Petitioner relies on Strubbe to further suggest a similar partial overlay technique, including for providing messages for a predetermined time and including reminder selection messages. *Id.* at 46–47 (citing Ex. 1610, 6:45–49 (describing a PIP (picture in picture) visual reminder displayed 10 seconds before show), 50–51 (addressing reminder messages)). Regarding motivation to display a signal for a predetermined time, Petitioner contends “[d]isplaying messages or other information for a predetermined time period, as shown in Strubbe, would provide the information while limiting distractions.” *Id.* at 47 (citing Ex. 1609 ¶ 149).

Regarding reminder messages, in addition to Strubbe, Petitioner relies on Young ’121’s disclosure of reminder messages. Petitioner contends “[a] POSITA would have been motivated to add this reminder functionality to prevent users from missing desired television programs, thereby improving the user experience with the program guide.” 50Pet. 50 (citing Ex. 1611, 3:21–24). Petitioner concedes “Young ’121 . . . arguably does not teach using ‘reminder selection messages’ to set up the reminder.” *Id.* at 50–51. Petitioner turns to Strubbe as follows:

Strubbe’s reminder selection messages allow the user to select commands for selecting a reminder for a future program. Strubbe discloses that pressing the Change B button allows a user to enter selection commands to set the type of reminder that is to be displayed at a specific time (e.g., five minutes) before the start of a program.

50Pet. 51 (citing Ex. 1610, 6:42–49; Ex. 1609 ¶ 155).

In Strubbe, after a user selects “favorite broadcast programs” to place in a Future Program menu, the menu delivers an option to select a reminder message, with option B used to adjust the type of reminder displayed at some time before the program. *See* Ex. 1610, 5:29–50, Figs. 6a, 6b, 8a, 8b,

8c, 8d. Regarding motivation for modifying the algorithm of “Young ’801, as modified by Young ’121” using Strubbe’s reminder selection messages (and Young ’121’s and Strubbe’s reminder messages), Petitioner contends, *inter alia*, “a POSITA would have looked to improve flexibility of various aspects of the system, including when and/or how reminder messages are provided.” 50Pet. 52 (citing Ex. 1609 ¶ 156).

In addition, Petitioner persuasively points out that Remillard, Young ’121, and Strubbe each teach displaying messages or other information in overlaying messages. See Pet. 51–54 (citing Ex. 1605, 5:55–61; Ex. 1609 ¶¶ 155, 156, 158, 159; Ex. 1610, 6:25–49, 10:6–14; Ex. 1611, 3:21–24, 16:18–23, 16:38–41, 20:43–46, Fig. 13 (step 508) (superimposing the name of the program over a TV signal as a subtitle). For example, Petitioner contends “Young ’121 teaches allowing a user to select a program from a program guide to create a reminder for the selected program and superimposing the name of the selected program on a TV screen to remind the user (‘reminder message’) of the selected program.” *Id.* at 49–50. Petitioner cites Figure 14a of Strubbe, which discloses an example of reminder overlay (PIP) message, as reproduced below:

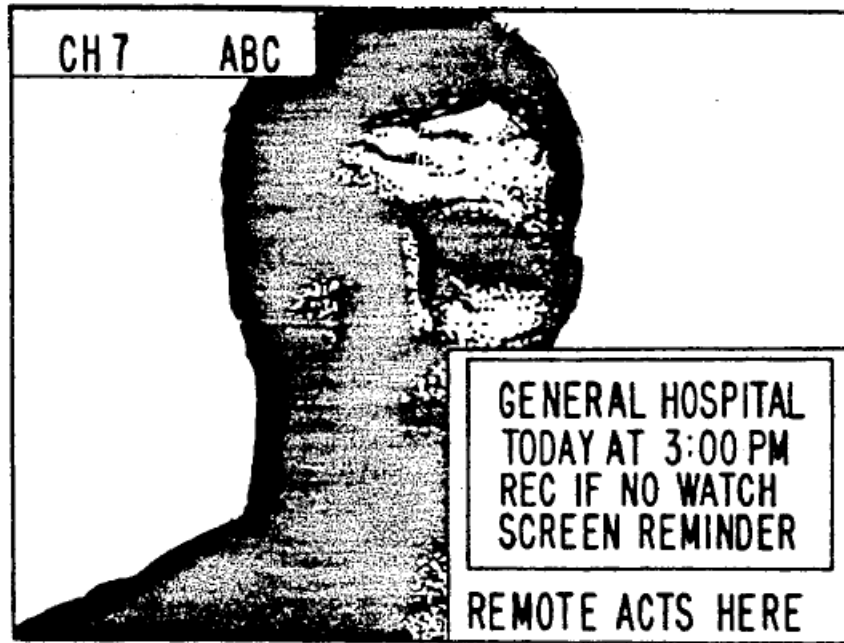


FIG. 14a

Id. at 53 (reproducing Fig. 14a of Strubbe). Figure 14a above shows an overlay screen reminder message (“GENERAL HOSPITAL TODAY AT 3:00 PM”) overlaying a television show on channel 7 “ABC.”

Petitioner persuasively summarizes the motivation for providing reminder selection and reminder messages as follows:

It would have been obvious to modify the Young ’801-Remillard-AAPA-Young ’121 combination to display reminder selection messages and reminder messages as taught by Strubbe so the user could customize reminders and be alerted to an upcoming program. (Ex-1609, ¶160.) It also would have been obvious to display the reminder messages in an overlaying relationship so that the user could be alerted to an upcoming program while also watching a current program. (Ex-1609, ¶160.)

50Pet. 54.

Based on the foregoing discussion and a review of the record, Petitioner shows by a preponderance of the evidence that claim 5 would

have been obvious over the asserted combination. *See* 50Pet. 26–54.

Petitioner also makes a detailed and sufficient showing by a preponderance of the evidence with respect to the remaining challenged claims. *See id.* at 54–95.

Claims 6–10 depend from claim 5. Claim 6 requires the predetermined display period to be user-selectable. Petitioner points to Strubbe’s teaching of different types of reminder overlays “for approximately 10 seconds” as teaching a predetermined time. 50Pet. 55 (citing Ex.1610, 10:6–14). Petitioner also contends “Young ’801 . . . describes several adjustable or customizable options including the display of program notes and titles.” *Id.* at 56 (citing Ex. 1602, 15:8–16, Fig. 11). Citing MPEP § 2144.04 and Mr. Wechselberger’s testimony (Ex. 1609 ¶ 166), and based on Strubbe’s and Young ’801’s teachings, Petitioner contends “[i]t was known that many predetermined values could be adjustable/user-configurable, thereby providing a customized and improved user experience.” *Id.* Petitioner notes the Examiner “found that this would have been obvious based on Strubbe.” *Id.* at 56 n.10 (citing Ex. 1606, 856).¹⁸ Based on the related teachings and Mr. Wechselberger’s testimony, Petitioner persuasively shows displaying information for an adjustable user-selectable time period according to claim 6 would have been predictable and beneficial because it would have provided user-customized desired

¹⁸ The Examiner found and reasoned that “Strubbe does not specify that the reminder message duration can be adjusted,” “the type of reminder message can be adjusted by the user,” “different users prefer different features,” and “the advantage of the reminder function in Strubbe is self[-] explanatory” (i.e., so a “user can be reminded before a program comes on”). Ex. 1606, 849, 856 (modifying Young ’268 and Nemoto with Strubbe’s teachings).

information ensuring a user does not miss a program while limiting distractions for improving the user experience. *See id.* at 56.

Claim 7 depends from claim 5 and recites “said schedule information displayed by said video display generator comprises at least program title and program channel.” Petitioner points to Young 801’s Figure 1 as displaying title and channel information. *Id.* at 57.

Claim 8 depends from claim 5 and requires a second set of reminder selection messages “in at least one further mode of operation” and to include a predetermined display period for a second reminder message to be user-selectable. Petitioner contends Young ’801 teaches toggling between different modes and reasons “[i]t was known that users often desire to watch multiple programs in the future.” *See* 50Pet. 59 (citing Ex. 1602, 14:6–29, Fig. 8, Ex. 1609 ¶ 170). As noted above, Strubbe teaches a user selecting multiple future programs and reminder messages. *See* Ex. 1610, Figs. 8a–8d, 12b, 6:25–49.

Petitioner also relies on Young ’801’s teachings of providing program information in multiple viewing modes (e.g., a grid 24 for a single channel and program list 58). 50Pet. 59–60 (citing Ex. 1602, 14:6–29, Fig 8; Ex. 1609 ¶¶ 173–174). Petitioner contends providing the reminder selection and message functionality as suggested by Young ’801, Young ’121, and Strubbe would have been obvious for the purpose of selecting the same function from a related viewing mode in order to provide adjustable reminders for more than one program in a convenient fashion. *See id.* at 58–63 (citations omitted, relying on similar reasons indicated above with respect to claim 6).

Claim 9 depends from claim 5 and requires reminder messages to be displayed in a partial overlaying relationship “with said another display

signal.” Petitioner relies on Strubbe’s Figure 14A, which shows a partial overlaying reminder message on channel 7, and similar overlaying messages in Figures 11a and 11b. 50Pet. 63–64. Petitioner points to similar teachings of partial overlays of reminder alarms in Young ’121, and contends a partial overlay would have been obvious “so that the user would have been alerted to an upcoming program with minimal interruption of the program the user was watching.” *Id.* at 65 (citing Ex.1609 ¶ 179; Ex. 1611, 16:38–41, 20:43–46, Fig. 13 (step 508)).

Claim 10 depends from claim 5 and requires “said another display signal” to be “a television display signal.” Petitioner contends Young ’801 and Remillard each teach a television display signal, with Remillard teaching displaying information in an overlay format to allow the user to continue to watch the television show. *Id.* at 66 (citing Ex. 1602, 14:30–32, Fig. 2; Ex. 1605, 5:55–61). Petitioner contends claim 10 would have been obvious over the combination of references because “the viewer would have been able to watch a television program while viewing program information for other channels.” *Id.* (citing Ex. 1609 ¶ 181).

Petitioner makes similar showings for the remaining challenged claims. Petitioner points out independent claims 5, 15, 29, 34, and 41–43 recite similar limitations and provides charts addressing the similarities and differences. *See* 50Pet. 67–93. Petitioner shows that the remaining challenged claims recite similar limitations to those addressed above with respect to claims 6–10 and/or recite well-known television program guide and remote control features. *See id.* at 71 (claim 17), 71–72 (claim 18), 73–75 (claims 31–32), 78–80 (claims 35–38), 89–92 (claims 44–48).

With further respect to claim 17, Petitioner relies partly on its showing for claim 15 (which in turn tracks claim 5). *See id.* at 71. Claim 17 recites

“said navigation including deleting at least one program listing appearing in the overlay and adding at least another program,” and Petitioner notes claim 15 does not recite that limitation. *See id.* Petitioner reads that limitation on Young ’801’s page feature, asserting “Young ’801 allows the user to ‘page’ through program listings, which replaces one page of listings with another, thereby causing at least one program listing appearing in the overlay to be deleted and another program listing to be added.” *See id.* (citing Ex. 1602, 13:5–16; Ex. 1609 ¶ 183).

With further respect to claims 41–43, Petitioner relies partly on its showing with respect to claim 5, and also points out claim element differences, reading the elements primarily on Young ’801. *See id.* at 80–89.

In light of the record, including considering Patent Owner’s arguments summarized below, Petitioner shows by a preponderance of evidence that the subject matter of challenged claims 5–10, 15, 17, 18, 29, 31, 32, 34–38, and 41–48 would have been obvious over the combination of Young ’801, Young ’121, Strubbe, and Remillard. *See id.* We agree with Petitioner’s persuasive showing, as detailed above, and also as further illustrated in the Petition.

11. Patent Owner’s Response, Petitioner’s Reply

Patent Owner contends that in the ITC Case or during prosecution, Patent Owner overcame the references. *See, e.g.*, PO Resp. 22 (discussing Moro), 24 (discussing Reiter). Patent Owner’s contentions fail to respond clearly to Petitioner’s obviousness showing here and rely on an overly narrow claim interpretation.

Patent Owner generally discusses what a particular reference allegedly fails to disclose, but that line of argument does not address Petitioner’s

persuasive showing of obviousness, because Petitioner does not rely on these alleged missing features in the references as discussed by Patent Owner. For example, Patent Owner contends “Moro provides no explanation of what it means for the remote controller to ‘operate[] to switch to the fourth channel of the satellite broadcasting.’” PO Resp. 22 (quoting Ex. 1403, 5:37–40) (citing Ex. 2406 ¶¶ 65–67). Petitioner does not rely on Moro for a fourth channel switching feature, and Patent Owner does not explain clearly how that contention bears on an issue here.

To the extent Patent Owner raises an issue in its Response that attempts to address Petitioner’s obviousness showing here, we address it below. We group Patent Owner’s arguments under the headings below, and any of Patent Owner’s arguments not discussed specifically below do not address Petitioner’s persuasive showing of obviousness and thus do not present a sufficiently clear rebuttal of Petitioner’s showing.

a. Selected and Displayed Portions

Patent Owner contends Young ’801 does not disclose or suggest the “consecutively displayed” and “interactively-selected [successive] portions” limitations we construed above, which apply in some form to all challenged claims, with independent claim 17 reciting narrowing limitations. See PO Resp. 16–18. Patent Owner’s arguments primarily turn on claim construction. For example, Patent Owner argues Petitioner does not explain how Young ’801 discloses “anything like the Browse mode of the ’556 patent, by which the user surfs through program listings by interactively selecting successive portions of schedule information and consecutively displaying sequential time periods as though surfing through channels.” *Id.* at 19 (citing Ex. 2406 ¶¶ 44–53).

As determined above, however, the challenged claims do not require a specific Browse mode feature. *Supra* Section II.A.1–2 (Claim Construction). Patent Owner’s citations to Dr. Bovik do not support Patent Owner’s position. At the cited portions, Dr. Bovik testifies about what Young ’801 discloses (Ex. 2406 ¶¶ 44–51), testifies “moving a cursor from one program to another on a displayed grid in Young ’801 is nothing like the Browse mode” (*id.* at 52), and concludes Young ’801 does not disclose a tuning function (*id.* at 53). The challenged claims here do not involve tuning and do not require all the Browse mode features.

As Petitioner responds, however, Patent Owner selectively attempts to incorporate various aspects of the Browse mode as claimed features. Reply 10 (“Patent Owner wants it both ways – it does not argue that the claims are limited to the single-entry ‘BROWSE’ listing shown in FIGS. 11 to 12A, because such an interpretation would not cover any of Comcast’s program guides. Yet, it repeatedly refers to the ‘BROWSE MODE’ while ascribing a different set of functions to that mode than is shown in FIGS. 11 to 12A.”). The Petitions individually show that Young ’801 as combined with the Moro, Reiter, or Remillard teach “interactively selecting successive portions of schedule information and consecutively displaying sequential time periods as though surfing through channels.” See PO Resp. 19. Moro, in particular, teaches an *interactive* partial overlay display. See *supra* Section II.B.4, B.8; Ex. 1403, Fig. 2.

Surfing involves providing information as a partial overlay about different channels and the ’556 patent does not limit it to the Browse mode. See Ex. 1402, 2:42–61 (generally discussing surfing through channels as providing information about the channels and discussing a need to provide it while watching another channel); *supra* Section I.C, II.A.2 (discussing

surfing).

Patent Owner also contends

the claims are not directed to selecting an individual program from a list of programs, but are directed to interactively-selected successive portions of schedule information **for display** in an overlay—namely, successive portions of the schedule information are displayed based on the user having interactively-selected to change the displayed schedule information by a channel in the channel domain or by a time period in the time domain.

PO Resp. 28 (citing Ex. 2406 ¶¶ 82–83). Again, however, Patent Owner relies on “the disclosure of the Browse mode . . . and the explanation of the claimed invention in the prosecution history.” *Id.* at 28. The cited portion of Dr. Bovik’s testimony does not support Patent Owner’s position. For example, Dr. Bovik refers to claim 2 and states Patent Owner’s “reading of the claims is supported also by the disclosure of the Browse mode in the specification.” Ex. 2406 ¶ 83. Dr. Bovik also essentially agrees that the displayed and selected limitations relate to each other. *Id.* (stating the “interactively-selected” limitation “is directed to what is displayed in the overlay”).

Petitioner shows, under our claim construction adopted above, which the prosecution history and the ITC Case supports, that moving the cursor across, up, or down Young ’801’s grid (e.g., Figures 2, 6), corresponds to similar movements with respect to the ’556 patent’s grid at Figures 18 and 25. *See* 48Pet. 35–38, 44–45, 47 (citing Ex. 1409 ¶ 151 (discussing navigating through grid time periods 11:00AM, 11:30AM, and 12:00PM)); Reply 12 (citing Figs. 18 and 25 of Ex. 1401, 14:1–67 and arguing “[i]n the grid-based embodiment, multiple listings are displayed in a spatially consecutive manner, where a user moves a cursor to highlight (‘display’)

different program entries”); 49Dec. Inst. 34 (citing ’49Pet. 37 as showing a single listing or multiple listings would have been obvious; quoting Ex. 1501, 12:19–22 (“the schedule information appearing in the overlay portion describes *the programs* currently playing on any current channel” (emphasis added))); Ex. 1401, 12:35–36 (describing highlighting the “displayed time” for a future program in the Browse mode); 49Pet. 37–38, 41, 47 (asserting highlighting a moveable cursor in Young ’801 meets the consecutively displayed navigation and interactively-selected [successive] portions); 50Pet. 36–48 (similar showing). Even the Browse mode generally describes “the schedule information appearing in the overlay portion describes *the programs* currently playing on any current channel” (emphasis added). Ex. 1401, 12:35–36.

The clauses at issue in claim 5, “for displaying interactively-selected successive portions of said program,” and “each said portion displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods or programs for which program schedule information has been received,” read on selecting and displaying successively highlighted portions of the grid as the cursor moves in response to consecutive user commands. The prosecution history does not support Patent Owner, and the challenged claims, with the exception of claim 17, do not require the deleting and adding aspects of the disclosed Browse mode. *See supra* Section II.A. As explained above, the specification supports the panel’s reading of the claim language. In addition to describing a flexible schedule, the specification states “[i]n the All Listings mode, *a moveable highlighted cursor 185 is used to indicate the currently selected program to the user.* The user manipulates the cursor movement using the direction arrow keys on the remote

controller.” Ex. 1401, 14:42–44 (emphasis added). In Figure 18 of the ’556 patent, moving cursor 185 displays a new highlighted portion as it moves up and down the grid, indicating the currently selected program by such a display. *See id.* at Fig. 18; Reply 12.

As set forth above in the claim construction (Section II.A), the ’556 patent provides features from multiple modes by describing a “flexible program schedule system” that allows for “simultaneously viewing [with another signal] program schedule information for other channels and/or services on another portion of the screen.” Ex. 1401, 3:4–9 (e.g., a form of surfing), 2:59–61 (surfing need), 3:33–37 (“It is . . . an object of the present invention to provide a system that will allow the user to view a broadcast program while, at the same time, *interactively viewing program schedule information for other programs.*” (emphasis added)).

Viewing “other channels and/or services” in conjunction with the highlighted portion descriptions indicates displaying the highlighted selected portion among other non-selected portions. The ’556 patent does not require “for displaying” to read only on portions of a guide not yet displayed on the guide (i.e., the challenged claims, other than claim 17, do not require adding and deleting listing information). The menu items in Young ’801 constitute items “for display”—Young ’801’s cursor displays each portion in a new highlight (and other display features) according to consecutive selection commands.¹⁹

¹⁹ As Patent Owner recognizes, Young ’801 provides additional 3D and other feedback related to the highlighted cursor display: “***If the cursor is moved left or right, the solid section will move accordingly, providing complete visual feedback.***” Thus, this modified 3D offset shadow cursor 32 satisfies the demands stated above: it spans the entire cell, yet clearly

Petitioner also generally points to the “What’s on TV request” in addressing the challenged claims, including claim 5 (and relies on its claim 5 showing for other claims), and contends Young ’801 discloses “an algorithm the same as or equivalent to what is disclosed in the ’556 Patent.” 48Pet. 44 (citing Ex. 1409 ¶ 147). In addition, addressing the adding and deleting features of claim 17, Petitioner maintains that Young 801’s page command satisfies the challenged claims (except claim 41) even under Patent Owner’s arguments urging a narrow claim construction. See Reply 11–12. Claim 17 narrows the selecting and displaying navigation features recited in all the other challenged claims by reciting in pertinent part, “said navigation including deleting at least one program listing appearing in the overlay and adding at least another program listing in the overlay.” Petitioner explains

Patent Owner’s own expert, Dr. Bovik, confirmed that Young ’801’s “page” command causes a new successive page of program listings to be displayed each time it is pressed. This means that nearly all of the claims are unpatentable based on Young ’801’s page command, the same command that Patent Owner itself asserted in the ITC case corresponds to the claimed “navigation” through the guide. (Ex-1423, 11–12; Ex-1424 (pointing to “Page Up and Page Down” commands in the accused Comcast guide).)

Reply 15.

Petitioner shows persuasively that selecting and displaying navigation features of all the challenged claims (except claim 41, see Reply 15 n.5) and as further limited by “said navigation including deleting at least one program listing appearing in the overlay and adding at least another program listing in

highlights the current underlying position. Movement of the cursor 32 will always be visible even for cells 26 that are much longer than the underlying cell.” PO Resp. 31 (quoting Ex. 1402, 9:7–29 (emphasis by Patent Owner)).

the overlay” in claim 17, reads on changing a whole page to obtain a listing for a different set of channels as Young 801’s page command provides. *See* Ex. 1402, 13:5–16, Figs. 1–3, 5–6; 48Pet. 71–72 (citing Ex. 1402, 13:5–16; Ex. 1409 ¶ 188); 49Pet. 67–68 (materially similar citations); 50Pet. 71 (materially similar citations). As Petitioner argues, Patent Owner does not address Petitioner’s challenge to independent claim 17, which relies on Young 801’s page command. Reply 11–12, 35; 48Pet. 71–72 (citing Ex. 1402, 13:5–16; Ex. 1409 ¶ 188); 49Pet. 67–68 (materially similar citations); 50Pet. 71 (materially similar citations).

So even under Patent Owner’s proposed claim interpretation, replacing one page with another using consecutive page commands as Young 801 teaches (as a partial overlay according to the reference teachings in Moro, Reiter, and Remillard) constitutes “for displaying interactively-selected successive *portions of said program schedule* information in overlaying relationship with another program signal” (emphasis added) and “each said portion displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods or programs for which program schedule information has been received,” as claim 5 recites. Consecutive page commands correspond to “corresponding consecutive ones of said guide control commands” that produce a responsive display of a new page that constitutes “for successively navigating through listing information” for “programs.” Similar remarks apply to the selecting and displaying limitations of the other challenged claims (except claim 41, limited “to navigation by time” Reply 15 n.15).

As Patent Owner recognizes, Young 801’s consecutive page commands produce a new channel and program list. *See* Ex. 1402, 13:5–16,

Figs. 1–3, 5–6; PO Resp. 16 (“Young ’801 discloses that the ‘grid 24’ (*e.g.*, as shown in Fig. 2) may be changed by ‘a page command,’ such command would display a new set of channels with multiple programs displayed on each channel. *See* Ex. 1402, 13:5–10, Fig. 2. A full-screen page with program listings for a single channel can also be displayed. Ex. 1402, 14:6–29.”). Toggling to and from different channels of a single channel page (Fig. 7) with successive times and a multiple channel listing with a subset of those times satisfies “successively navigating through listing information for sequential time periods or programs for which program schedule information has been received.” *See* Ex. 1402, Fig. 7 (listing successive time periods and programs from 11:00 am through 7 pm on channel 2); Figs. 1, 6 (listing a subset of those successive time periods for multiple channels); Reply 24 (discussing channel 2 with limited time slots in Figure 1 as compared to Figure 7).

Annotating Figure 6, Petitioner explains “Young ’801 describes multiple mechanisms for navigating through the guide, such as changing grid pages with a page command and channel Up/Dn commands. . . . It also describes navigating through cells of a guide using navigation keys.” Reply 17 (citing Ex. 1402, 8:2–27, 13:7–9, 24:26–31, Fig. 6).

Petitioner contends that during his deposition, “Dr. Bovik confirmed that Young ’801’s page command replaces each page of program listings with a new page of program listings, thus meeting” the limitations for “consecutively displayed” and “interactively-selected [successive] portions.” *See* Reply 34 (citing Ex. 1421, 105:22–106:6; Ex. 1409 ¶ 188; Ex. 1420 ¶¶ 33–34); 48Pet. 71–72 (citing Ex. 1402, 13:5–16; Ex. 1409 ¶ 188); Ex. 1402, Fig. 7, Fig. 20. Dr. Bovik stated, *inter alia*, the “channel up and down button will move you to a different screen. In fact, it will be another

violent jump . . . to another set of listings.” Ex. 1421, 108:3–7. He also stated “[w]hen you hit the page button, you know, you jump to a whole page with a whole different set of channel listings.” *Id.* at 105:23–25. Dr.

Bovik’s deposition testimony supports Petitioner’s position.

Summarizing, Petitioner contends “[t]he left and right cursor keys are used to navigate horizontally by time and the up and down cursor keys are used to navigate vertically across channels and programs.” Reply 18.

Petitioner also points to Young ’801’s teaching of providing “a gentler cursor motion when using cursor commands to navigate to a cell ‘situated several hours from the current page.’” Reply 18 (citing Ex. 1402, 3:16–19). Petitioner also points to “an arrow icon that points in the direction of a successive page when a cell is continued on the next page.” *Id.* (citing Ex. 1402, 10:1–5).

In context, Young ’801’s guide provides new pages of information to show different times and programs for channels in the horizontal direction and to show different programs for a specific channel in the vertical direction. With respect to the vertical direction, “[w]hen the last channel on a page is reached, the next Tuner command will change the channel to the channel listed at the beginning of the following page.” Ex. 1402, 13:1–4. “If a page is turned using the page command, the current channel is not located in the previous page, and will not be seen in the new page.” *Id.* at 13:9–12. Another command, the What’s on TV Key (Ex. 1402, Fig. 8), provides a toggle between a current grid page (*id.* at Fig. 6) showing multiple channels and time slots to a single channel listing (*id.* at Fig. 7, channel 2 listing from 11am to 7pm) that shows upcoming times for shows on that specific channel. *See id.* at 14:16–19. In the horizontal (time)

direction, “the border of a cell 26 . . . is continued to the next screen”

designated by an arrow icon 38. *Id.* at 10:2–3, Fig. 5.

Patent Owner recognizes that Young ’801 teaches a page command and a single channel grid of programming listings that each provide changes in the listing:

Young ’801 discloses that the “grid 24” (e.g., as shown in Fig. 2) *may be changed by ‘a page command,’ such command would display a new set of channels with multiple programs displayed on each channel.* See Ex. 1402, 13:5–10, Fig. 2. A full-screen page with program listings for a single channel can also be displayed. Ex. 1402, 14:6–29.

PO Resp. 16.

Accordingly, Petitioner shows that Young ’801 teaches the disputed limitations by either scrolling within Young’s screens via a highlighted cursor or by changing pages of information to display different guides showing new channels with different times and programs and/or future times for any given channel or channels.

Patent Owner also argues that “Young ’801 was considered and initially relied upon by the Examiner, then ultimately overcome.”

PO Resp. 19 (citing Ex. 1406, 309, 443–44). Patent Owner does not show that what occurred during prosecution with respect to Young ’801 and how it bears materially on an issue in the instant cases. See *id.* The cited sections appear to include arguments made by the Applicants early in the prosecution (Oct. 28, 1994) to overcome an anticipation rejection based on Young ’801, and early forms of the claims that the Applicant subsequently amended. See Ex. 1406, 416–438 (claims subsequently amended) 443–444 (arguments made). In another portion of the Response, Patent Owner contends “Applicants distinguished Young ’801 by demonstrating that it failed to

disclose viewing ‘schedule information for other programs, e.g., in a window superimposed in partial overlaying relationship with the currently aired program’ and ‘user-selectable periods for displaying schedule information.’” PO Resp. 12 (citing 1406, 443–44). This focuses on partial overlaying and user-selectable periods as argued limitations, showing Patent Owner did not distinguish the select and display features during prosecution.

As indicated above, the Petition provides a summary of the prosecution history, and it refers to actions occurring later than the 1994 period cited by Patent Owner (i.e., Examiner Interview Summary Record, May 7, 1996). See Pet. 22–24 (contending “the examiner indicated that the claims would distinguish over the prior art of record if they were amended to include a ‘tuning function’ or ‘reminder function,’” and adding that the Petition present Strubbe and Young ’121 in a new light (citing Ex. 1406, 939)). In addition, we discuss the pertinent prosecution history and the ITC Case in Section I.A and it neither supports Patent Owner’s position. In summary, Patent Owner’s arguments fail to undermine Petitioner’s persuasive showing. See PO Resp. 10–14, 19–27.

*b. Interactively-Selected Successive Portions
as a Partial Overlay*

Patent Owner asserts correctly that all the challenged claims recite a version of “interactively-selected successive portions” and “in a partial overlaying” relationship. PO Resp. 29. We address the related arguments about selected and displayed portions in the preceding section. Patent Owner contends “although Petitioner focuses on the cursor in Young ’801, Petitioner fails to establish that a POSITA would have recognized Moro, Reiter or Remillard as disclosing support for a cursor-driven guide like that disclosed in Young ’801 in a partial overlay.” *Id.* (citing Ex. 2406 ¶¶ 88–

89). Patent Owner contends Young '801 discloses an “innovative cursor” providing 3-D highlighting of grid cells, which involves an array of visible cells of irregular lengths having cells of regular length underlying the irregular cells. *Id.* at 30. Patent Owner contends Petitioner fails to explain how this disclosed cursor and cell arrangement would be employed in a partial overlay system. *Id.* at 31–32 (citing Ex. 2406 ¶¶ 89–90; Ex. 2407, 39:5–12).

Dr. Bovik’s cited testimony largely tracks Patent Owner’s arguments. *See* Ex. 2406 ¶¶ 89–90. Dr. Bovik also testifies that “Ppetitioner and Mr. Wechselberger fail to point to any disclosure of a partial overlay.” *Id.* ¶ 90. The record, however, does not support Dr. Bovik on that point. *See supra* Sections II.B.4.–6, 8–10.

Ppetitioner persuasively replies that each of “the secondary references, Moro, Reiter, and Remillard—disclose information in a partial overlay relationship or simultaneously with a displayed program.” Reply 32 (citing 48Pet. 26–27; 49Pet. 37; 50Pet. 27–28). Ppetitioner also contends the additional references need not disclose a cursor driven guide. *See id.* (citing 48Pet. 26–27; 49Pet. 37; 50Pet. 27–28). Ppetitioner repeats part of its relevant showing made in the Petitions with respect to the three secondary references. *See id.* at 32–33. In the Petitions, and in the Reply, Ppetitioner contends each reference, in combination with Young '801, suggests modifying Young '801 to create a partial overlay (instead of a full screen), “to allow a viewer to view the program information without interrupting the currently tuned and displayed program.” *See id.* at 32–33 (citing 48Pet. 26–27; 49Pet. 37; 50Pet. 27–28).

In the 48Petition, as in the other two Petitions, Ppetitioner relies on Mr. Wechselberger’s testimony. 48Pet. 40–41 (citing Ex. 1409 ¶¶ 124–132);

49Pet. 38 (citing Ex. 1509 ¶ 123); 50Pet. 41–42 (citing Ex. 1609 ¶ 132).

Petitioner notes that Moro specifically discloses an interactive partial overlay, so “a user can learn about other available programs ‘without interrupting’ the program he/she is currently watching, thereby ‘greatly improving the operating convenience.’” 48Pet. 40 (quoting Ex. 1403, 2:52, 6:6–7; citing *id.* at 5:31–35); see Ex. 1403, Fig. 2 (depicting a partial overlay having interactive selections), 4:1–4, 5:6–35, Fig. 2 (Moro teaches an *interactive* partial overlay display controlled by a remote controller); *supra* Section II.B.4, B.8. Young ’801 and Moro each teach control of an interactive partial display, with Moro specifically teaching a partial overlay of an *interactive* menu.

Similarly, Reiter teaches an “INTERACTION MENU” as a partial overlay to a television signal. Ex. 1505, Fig. 2, 5:15–6:20. Like Young ’801’s system, a remote keypad provides interactive menu control, with Reiter specifically teaching a partial overlay of an *interactive* menu. *Id.* at 5:7–21, 5:15–6:20. Remillard also teaches an interactive menu as a partial overlay in area 80 of a television signal: “The user chooses one of the options from the menu by use of a remote keypad control.” Ex. 1605, Abstract, Fig. 1, 5:37–60. Patent Owner recognizes Remillard discloses “interaction menus” in the partial overlay area 80. See PO Resp. 24–25 (quoting Ex. 1605, 5:37-60).

Moro, Reiter, Remillard, and Young ’801 (discussed *supra* in Section II.B.2, 4, 5, 6) individually show that an artisan of ordinary skill would have known how to implement a partial overlay controlled by a user, and would have had a sufficient reason to do so—i.e., to avoid interrupting the currently viewed television show. See Ex. 1409 ¶ 132 (“a POSITA would have found it obvious to modify Young ’801 to use well-known overlaying techniques,

such as shown in Moro”), ¶ 135 (pointing out the Examiner previously found Remillard “clearly teaches that such features can be incorporated into a television scheduling system such as disclosed by Young” ’121 (quoting Ex. 1405, 797)); Ex. 1509 ¶ 123 (referring to “the known overlaying technique, as shown in Reiter” and stating “Reiter shows that the use of overlaying program schedule information over a currently-watched program was a known technique. . . . [which] would have allowed the viewer to view the program schedule information without interrupting a currently viewed program”); Ex. 1609 ¶ 136 (“on screen display (OSD) graphics overlay devices (‘video display generators’) were well-known standard off-the-shelf devices as of the 1970s and 1980s as a result of their widespread use in teletext, videotext, closed captioning and video game applications”), ¶¶ 137–138 (discussing Remillard as teaching the well-known technique using known video cards); 48Pet. 41 (quoting Young ’801 as “teaching ‘supplemental schedule information is presented in overlays that obscure a minimum amount of useful other information’” (quoting Ex. 1402, 4:15–18; citing Ex. 1409 ¶ 139)). Based on the foregoing, Patent Owner’s arguments do not undermine Petitioner’s persuasive showing.

*c. Consecutive Display of Successive
Portions of Schedule Information in Claims 41–43*

Patent Owner contends Petitioner fails to address certain additional limitations in claims 41–43. PO Resp. 32–35. Claim 41 recites “each *said portion* [of program schedule information] *comprising listing information* for each successive one of said television programs *scheduled to appear on said currently tuned channel and being consecutively displayed* in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information *for sequential time*

periods for which program schedule information is stored in said memory means.” Ex. 1401, 37:17–25 (emphasis added).

Addressing this clause, Patent Owner contends

Petitioner ignores the limitation that each consecutively displayed portion is for “***each successive one*** of said television programs scheduled to appear on said currently tuned channel.” Petitioner further ignores that claim 41 requires “***each successive one*** of said television programs . . . ***being consecutively displayed*** in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods.”

PO Resp. 34 (quoting claim 41 (emphasis by Patent Owner)). Patent Owner contends that by relying on its showing for claim 5, Petitioner “fails to even facially demonstrate that the actual claim limitations are disclosed by the proposed combinations.” *Id.* (citing 48Pet. 43, 84–87; 49Pet. 40–45, 79–82; 50Pet. 43–48, 82–85. Patent Owner adds

as a matter of substance, Petitioner fails to show that the proposed combinations disclose changing what is displayed in the partial overlay by consecutively displaying each successive one of sequential listings for programs scheduled to appear on a particular channel in response to consecutive guide control commands.

Id. (citing Ex. 2406 ¶¶ 94, 96–97).

Patent Owner cites to Dr. Bovik’s testimony but does not explain how it supports its position. PO Resp. 34 (citing Ex. 2406 ¶¶ 94, 96–97).

Dr. Bovik’s testimony largely reiterates Patent Owner’s position. For example, Dr. Bovik testifies that claim 41 requires “consecutively displaying ***each successive one*** of sequential listings in response to consecutive guide control commands.” Ex. 2406 ¶ 94. This testimony fails to address why moving a cursor in a guide does not constitute “consecutively displaying each successive one of sequential listings in response to consecutive guide

control commands.” Also, the arguments and cited testimony by Dr. Bovik mischaracterize the specific language of the limitation at issue. *See* PO Resp. 34; Ex. 2406 ¶¶ 94, 96–97. The limitation does not recite “consecutively displaying each successive *one* of sequential listings,” rather the clause recites “*a portion comprising listing information . . . being consecutively displayed.*” Ex. 1401, 37:18–22 (emphasis added).

Petitioner relies partly on its showing with respect to claim 5, but Petitioner also describes how claim 41 differs from claim 5 and addresses the differences. *See* 48Pet. 83 (“Identical to 5[E], except:”), 84 (listing other differences between the claims); 49Pet. 79–82 (similar showing). Petitioner explains that Young ’801’s “EPG displays information both *for the currently-tuned channel* (as shown by channel 2, highlighted at 56 *and programs to the right of that channel*) and for channels different from the currently-tuned channel.” 48Pet. 83 (emphasis added); 49Pet. 79 (same); 50 Pet. 83–84 (similar showing). Programs to the right of the channel include programs in the displayed guide and a related guide not yet displayed.

Petitioner also provides a citation to Young ’801 that describes “abrupt jumps”—jumps that correspond to moving the cursor to the right. *See* 48Pet. 87 (citing Ex. 1402, 3:14–17); 49Pet. 82 (citing Ex. 1502, 3:14–17); 50Pet. 84 (citing Ex. 1602, 3:14–17). Introducing needed improvements, Young ’801 then states at the cited passage “a cursor right command may cause an abrupt jump to a cell situated *several hours from the current page.*” Ex. 1402, 3:14–16. In other words, Petitioner relies on jumps to other pages containing programming information hours in advance, in addition to programming information highlighted by the cursor movements within a page. Near the beginning of another cited passage, Young ’801 describes changing a grid page “by either a page command or

by entering a channel Up/Dn command as described above.” Ex. 1402, 13:7–8; 48Pet. 87 (citing Ex. 1402, 13:5–15:2); 49Pet 82 (citing Ex. 1502, 13:5–15:2); 50 Pet. 84 (citing Ex. 1602, 13:5–15:2).

Dr. Bovik contends the cited passage about jumps only refers to jumps “within a page,” but Young ’801 contradicts this view, because it refers to “a cell situated *several hours from the current page*.” See Ex. 2406 ¶ 96.

Citing Young ’801 to support his testimony and contradicting Dr. Bovik, Dr. Wechselberger explains persuasively as follows:

Although the column for the 12:30 PM time slot is not depicted in FIG. 2, we know that the grid guide includes additional columns for future programs based on Young ’801’s explanation that cell lengths can be several hours (e.g., four hours) long (Ex-1002, page 8, lines 13–35), Young ’801’s description about an abrupt jump to a cell situated several hours from the current page (Ex-1002, page 3, lines 14–17), and Young ’801’s description regarding the grid 19 continuity icon 38 shown in FIG. 1 (Ex-1002, page 9, line 30 to page 10, line 5). We also know that the Young ’801 television schedule system includes program schedule information for future programs based on the relationship between the single channel guide of FIG. 7 and the grid guide 24 of FIG. 1. Upon switching from the single channel guide of FIG. 7 to the grid guide 24 of FIG. 1, the cursor 32 highlights the cell corresponding to the channel and schedule time last selected within the single channel guide of FIG. 7. Ex-1002, 14:25-29. Because FIG. 7 has program schedule information for times periods later than 12:00PM (which is the latest time period in FIGs. 1–3 and 5–6) we know the cursor can appear at later time periods than those shown in FIGs. 1–3 and 5–6. In fact, FIG. 7 tells us what future programs for channel 2 would have been shown if the user continued to move the cursor to the right through the grid guides in FIGs 1–3 and 5–6.

Ex. 1420 ¶ 27; *see also id.* ¶¶ 19–35 (persuasively explaining it would have been unreasonable to deem Young ’801’s guide to be limited to a displayed page with depicted time-slots, relying on Young ’801’s disclosure and also

citing known spread-sheet cursor movement).

So Young '801's solution mitigates cursor jumps, with Young '801's system providing new pages with cursor movements as discussed above and as Dr. Wechselberger testifies.²⁰ Accordingly, by moving the cursor within a guide on a single channel line, which provides a new display of a television program via the highlighted cursor as it moves, Petitioner shows that Young '801 discloses "each successive one of said television programs . . . being consecutively displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods," as required by the challenged claims.

In addition, Petitioner shows that Young '801 teaches the limitation even under Patent Owner's proposed narrow claim construction, by employing new guide pages either in a vertical or horizontal (cursor jump) direction, as Patent Owner recognizes in part. *See* PO Resp. 16.²¹ Nothing in claim 41 precludes replacing one list with another list. Claim 41 recites

²⁰ Patent Owner describes Young '801 as providing an "innovative cursor" that accommodates irregular cells due to different lengths of programs. *Id.* at 30–31 (Ex. 1402, 9:7–29). In other words, the "innovative" cursor mitigates the jumps that Young '801 refers to in the context of jumping hours ahead. *See* Ex. 1402, 3:14–17. Also, describing Figure 1, Young '801 refers to "the border of a cell 26 that is *continued to the next screen*," as indicated by "an arrow icon 38 pointed to the right"—i.e., "to indicate cell 26 continuity." Ex. 1502, 9:35–10:3 (emphasis added). So Young '801 provides for new guides on the "next screen" to the "right, which is the direction of program lapse." *Id.* at 10:4–5.

²¹ Patent Owner describes the page command as follows: "Young '801 discloses that the 'grid 24' (*e.g.*, as shown in Fig. 2) may be changed by 'a page command,' such command would display a new set of channels with

each *said portion* [of program schedule information] *comprising listing information* for each successive one of said television programs scheduled to appear on said currently tuned channel *and being consecutively displayed* in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods for which program schedule information is stored in said memory means.

Ex. 1402, 37:17–25 (emphasis added).

The limitation requires a consecutive display of a *portion* of program schedule information *comprising* listing information. It does not require a “portion” to consist of a single program listing.

Patent Owner also recognizes that Young ’801 teaches “*selecting* a desired program from the listing of TV programs . . . [which causes a] display [of] ‘a *program note overlay* 52’ that provides supplemental information about the selected program.” PO Resp. 17 (citing Ex. 1402, 12:14–15, Fig. 6) (emphasis added). This overlay note, which changes based on each cursor selection and a further toggle or select switch, corresponds to similar notes in allegedly infringing products at issue in the ITC Case that Patent Owner contends in its additional briefing that it relied upon in the ITC Case as meeting similar limitations in claim 3. *See supra* Section II.A.3.

Patent Owner makes similar arguments regarding claims 42 and 43. Patent Owner contends Petitioner advances a deficient showing with respect to the following limitation:

“each successive one of said television programs scheduled to appear on[said set of channels/a channel . . .] and being

multiple programs displayed on each channel.” PO Resp. 16 (quoting and citing Ex. 1402, 13:5–10, Fig. 2).

consecutively displayed in response to corresponding consecutive ones of said guide control commands for successively navigating through listing information for sequential time periods or programs” (Claims 42, 43).

PO Resp. 35. Patent Owner contends “the plain language further requires changing what is displayed in the partial overlay by time period or program.” *Id.* (citing Ex. 2406 ¶ 95). Patent Owner also contends Petitioner “fail[s] to show that the proposed combinations disclose consecutively displaying each successive one of the listings for sequential time periods or programs scheduled to appear on the set of channels in response to consecutive guide control commands.” *Id.* (citing Ex. 2406 ¶¶ 94–97).

In all three cases, in addition to citing page commands for narrower versions of the claims (i.e., claim 17) or pointing to citations for other page commands as noted above (e.g., relying on its showing with respect to claims 5 and 41, citing What’s on TV command (*see* 48Pet. 44–45, 86–89; *supra* Section II.B.11.a), Petitioner relies on the consecutive display of programs highlighted by cursor movement commands as discussed above with respect to claim 41. *See* 48Pet. 44–45 (citing Ex. 1402, 26:5–10; Ex. 1409 ¶ 147), 87–92 (citing Ex. 1402, 13:5–7, Fig. 1; Ex. 1409 ¶ 214). Petitioner also shows persuasively that “Young ’801 discloses grid 24 that displays schedule information for channels different from a currently-tuned channel. As shown in FIG. 1 . . . grid 24 displays information both for the currently-tuned channel (channel 2) and for channels different from the currently-tuned channel.” 48Pet. 91. As indicated, Petitioner makes materially the same showing in the 49Petition and 50Petition. 49Pet. 83–87; 50Pet. 85–89.

Based on the foregoing, Patent Owner’s arguments do not undermine Petitioner’s persuasive showing.

d. Combining Young '801 with Moro, Reiter, Remillard, and Young '121

Patent Owner generally contends Petitioner fails to show an artisan of ordinary skill would have possessed motivation to combine the references in the manner proposed. PO Resp. 36–46. We mainly address these arguments above. Patent Owner makes more specific arguments as noted in the following sections. Contrary to Patent Owner's arguments, Petitioner provides sufficient motivation for the combinations as discussed here and above.

1. Redesign Young '801 to Include Smaller Guides as Overlays

Patent Owner contends Petitioner's "proposed redesign of Young '801's full-screen grid guide uses the grid guide in a new way (reduced in size and in an overlay) contrary to Young's requirement of 'conveying the most amount of information to the user in an easily understood manner within the limitations of the television display.'" PO Resp. 38. According to Patent Owner, reducing Young '801's guide by eliminating some rows and columns so that its guide appears as an overlay runs counter to the desire to display the most amount of information to a user. *Id.* at 38–39. Patent Owner contends that Young 801's overlays of program notes minimize concealment of other guide information. *Id.* at 39–40.

Petitioner replies that Patent Owner reads Young '801 out of context. According to Petitioner, Young '801 teaches "conveying the most amount of information to the user in an easily understood manner within the limitations of the television display." Reply 39 (quoting Ex. 1402, 3:20–35). Petitioner also points out that Figure 6 of Young '801 specifically shows reducing the visible grid information by obscuring it under an overlay. *Id.* 40. Petitioner contends reducing the grid size to accommodate a television screen does not

run counter to Young '801.

Petitioner persuasively shows that Young '801 does not amount to a substantial re-design of Young '801. As Petitioner also explains, Young '801 teaches “program note 52 overlays or hides 3 or 4 listings of a guide.” Reply 43 (quoting Ex.1402, 12:16–17). This teaches “it was known to display less of a guide in order to display something else. It even teaches that the amount of the guide covered by something else could be variable and result in hiding either 3 or 4 lines of the guide.” *Id.*

In addition to the overlay of program notes, as mentioned above, Young '801 teaches other forms of overlays. For example, the 48Institution Decision notes that “Young '801 also discloses single program information listing for a currently tuned channel.” 48Inst. Dec. 58 (citing Ex. 1402, Figs. 9–10 (overlays 64, 66), 14:30–15:7). As also discussed above, the additional references teach that providing a partial overlay allows the user to view a program uninterrupted while obtaining useful information. In addition to the secondary references suggesting a reason for overlays, as Petitioner states, Young '121 suggests overlays in the form of reminder messages. *See* 48Pet. 54 (citing Ex. 1411, 16:38–41, 20:43–46, Fig. 13 (step 508)).

As indicated above, each of the additional references, Moro, Reiter, and Remillard, teaches interactive menus as partial overlays controlled by a user. *Supra* Sections II.B.4–6, 8–10, 11a–c. Patent Owner, citing Dr. Bovik, contends “none of the secondary references suggests reducing a full-screen guide and somehow converting that reduced-size guide into a partial overlay over a video program.” PO Resp. 40–41 (citing Ex. 2406 ¶¶ 108–115). Contrary to this argument and Dr. Bovik’s testimony, and as set forth in the 49Institution Decision, Reiter specifically teaches *the option* of an “interaction menu over all or a portion of a television screen, as desired.”

IPR2017-01148, IPR2017-01149, IPR2017-01150

Patent 6,418,556 B1

Ex. 1405, 2:63–3:1; 49 Inst. Dec. 19 (describing Reiter’s teachings).

Reiter’s options include an “overlay,” “window,” or “full screen,” with “scroll[ing].” *Id.* at 6:29–38, 3:13–26, 4:63–65 (similar disclosure); 49Inst. Dec. 19. Reiter discloses *a viewer who “wished to view a subset of the information, e.g., the television program schedule for the day . . . , through a different set of code signals . . . could then direct the microcontroller to output only a part of the information stored in the microcontroller RAM.”*

Ex. 1405, 5:16–22 (emphasis added).

Reiter further shows an artisan of ordinary skill would have possessed the requisite motivation (to prevent obscuring of the television show and provide user selected options) and skill to provide simple modifications of scale and formatting of Young ’801’s program guide (implemented for example by simply directing a selected portion of memory to be displayed). Mr. Wechselberger testifies similarly and credibly on this point. *See, e.g.*, Ex. 1520 ¶ 8 (“Dr. Bovik consistently underestimates the knowledge and abilities of the POSITA. . . . A POSITA would have understood that various information could have been presented in various layouts (e.g., grids, lists, narratives, etc.) within an overlay.”).

In addition to ignoring the knowledge of the skilled artisan, Patent Owner’s argument and supporting testimony improperly attack the references individually instead of addressing the combined teachings of the references. *See In re Keller*, 642 F.2d 413, 426 (CCPA 1981) (nonobviousness cannot be established by attacking references individually when asserted as a combination); *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (the test for obviousness is whether the combination of references, taken as a whole, would have suggested the patentees’ invention to a person having ordinary skill in the art). Based on the

foregoing, Patent Owner's arguments do not undermine Petitioner's persuasive showing.

2. Overlay and Reminder Functions, Elimination of Features

Patent Owner argues Petitioner's proposed combinations remove an "important aspect of Young '801," namely the program note overlay. PO Resp. 41–45. According to Patent Owner, Young '801 teaches using a select key on a remote controller to implement the overlay note feature, but "when a user selects a program in the guide, Petitioner proposes to create a reminder for the program as taught in Young '121, rather than display an overlay" note as Young '801 teaches. *Id.* at 44.

Essentially, Patent Owner contends the select key of Young '801 cannot be used for both the reminder function and the overlay note function. *See id.* at 41–45. Patent Owner characterizes using Young '801's select key as Petitioner urges as amounting to a "considerable change" over the interface of Young '121. *Id.* at 43–44. Patent Owner also contends the select feature of Young '121, used to store a program in a schedule for a future overlay, "was changed in Young '801." *Id.* at 20.

Petitioner replies that the considerable changes Young '801 describes about Young '121 "relate to navigating through the cells of the grid." *Id.* at 41 (citing Ex. 1420 ¶ 13). As noted above, Patent Owner describes Young '801's system as including regular and underlying irregular cells and an "innovative cursor" (PO Resp. 30–31 (citing Ex. 2406 ¶¶ 89–90)), which supports Petitioner's characterization here.

Petitioner also contends adding another button to provide the reminder selection would have been a "minor modification easily implemented by those skilled in the art at the time of the invention." Reply 42 (citing Ex. 1420 ¶¶ 10, 16). Petitioner also contends Young '801 discloses two

different buttons or command keys for separate commands after navigating with a cursor, including the “Select” command to provide a program note and the “Record It” command to record a program. *Id.* at 42 (citing Ex. 1402, 13:28–14:5; Ex. 1420 ¶¶ 10, 16).

Petitioner shows persuasively that an artisan of ordinary skill would have modified Young ’801 to implement overlay and reminder functionality using simple cursor controls in order to retain the functions for their intended purpose of providing information without obscuring programs. Based on the foregoing, Patent Owner’s arguments do not undermine Petitioner’s persuasive showing.

3. Young ’801’s Video Switcher, Hindsight, Remillard’s Genlock

Patent Owner argues “Replacing Young ’801’s video display generator 224 and video switcher 226 with Moro’s character generator 18, Reiter’s mixer 70, or Remillard’s video controller 108 would fundamentally alter Young ’801 in another material way, thus undermining Petitioner’s purported motivation to combine these references as claimed.” PO Resp. 45–46 (citing 48Pet. 40–42; 49Pet. 39; 50Pet. 41–42; Ex. 1409 ¶ 141; Ex. 1509 ¶ 128; Ex. 1609 ¶ 132; Ex. 2406 ¶¶ 126–127). Patent Owner contends Young ’801’s system employs a video switcher that toggles between full-screen programming or guides, creating an “intuitive” feel resulting in “the program you’re tuned to and no program information, or you get program information and no video.” PO Resp. 46 (quoting Ex. 2407, 37:11–14). Patent Owner explains “[r]emoving the video switcher would reduce the functionality of Young ’801’s system and result in a system that could not display a full-screen program guide.” *Id.* at 6.

In related arguments, Patent Owner contends Petitioner relies on hindsight to employ the overlaying techniques disclosed and suggested in

Moro, Reiter, and Remillard in a new way that involves interactive selection of successive portions with a cursor driven guide. *Id.* at 48–49. In another related argument, Petitioner contends Remillard’s system employs a genlock mechanism and a sync signal, and Young ’801’s system lacks a genlock and a sync signal. *Id.* at 49–52. Patent Owner also argues that Petitioner fails to describe how to combine the reference teachings. *Id.* at 52.

These arguments and the cited testimony of Dr. Bovik, which tracks Patent Owner’s arguments (*see* Ex. 2406 ¶¶ 118–119), improperly address the references separately and improperly assume an obviousness challenge requires a physical incorporation of parts disclosed in the separate references. *See* Reply 47–48 (quoting *In re Mouttet*, 686 F.3d 1332, 1333 (Fed. Cir. 2012) (in turn quoting *In re Sneed*, 710 F.2d 1544, 1550 (Fed. Cir. 1983) (“[I]t is not necessary that the inventions of the references be physically combinable to render obvious the invention under review.”); *In re Keller*, 642 F.2d 413, 425 (CCPA 1981) (“The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference”)).

The combination as proposed does not require a video switcher, sync signal, or a genlock device, but even if it does under a proposed option by Petitioner, an artisan of ordinary skill readily could have employed it. *See* Reply 46–47 (citing Ex. 1420 ¶¶ 8, 48, 51). Petitioner shows persuasively that artisans of ordinary skill readily would have provided partial overlay functionality by minimizing the information to be displayed, as Moro, Reiter, and Remillard each suggest, either by using known cards, or by modifying Young ’801’s system based on Moro’s, Reiter’s, or Remillard’s teachings of a partial overlay. *See* 48Pet. 27–29, 41–44, 56–57, 61–66, 72–84; 49Pet. 25–26, 37–40; 50Pet. 27–30, 39–43. Mr. Wechselberger’s

testimony credibly supports this position. *See* Ex. 1420 ¶¶ 8, 48, 51, 52 (testifying an artisan of ordinary skill would have deemed overlay functionalities to be commonly implemented by off-the-shelf hardware, from integrated circuits to cards, and modifying a genlock system and a sync signal would have been simple); Ex. 2407, 39:17–20 (“So it’s not a difficult design - - not a difficult design problem, but you just have to enhance Young ’801 so that you can get both the current video and the overlay at the same time.”).

An artisan of ordinary skill would not have viewed Young ’801’s system as limited to a binary choice of providing a full screen of video or a full screen of text, because closed captioning and other partial overlays were well-known. *See supra* Section II.B.1–7 (providing overview of art and skill-level). As noted above, each of Moro, Reiter, and Remillard specifically discloses *interactive* partial overlays, Reiter explicitly provides the option of a full menu or partial menu, and Reiter describes implementing the options by controlling the amount of RAM memory to be displayed. *Supra* Section IIB.11.d1, II.B.4–6, 8–10; 49Inst. Dec. 19 (describing Reiter’s teachings).

Also, Young ’801 suggests providing minimal information via Figures 9 and 10, which show a display of single program information, and via Figure 6 showing partial overlay 52. *See, e.g.*, 48Pet. 27 (annotating an overlaid program note in Figure 6 of Young ’801); *see also* Ex. 1421, 110:18–11:16 (Dr. Bovik describing challenge grazing overlays as disclosed in Young ’801 at Figures 9 and 10). Given the various teachings of Young ’801, known overlay techniques suggested therein, and reasons for using known overlay techniques as taught by the secondary references, an artisan of ordinary skill would have recognized that Young ’801 does not limit its

teachings to the two binary options advanced by Patent Owner. *See* PO Resp. 6 (making the opposite argument).

With respect to Remillard, the Petition asserts “[i]t also would have been obvious to implement Remillard’s video controller 108 using the AAPA RocGen card to implement the functionality shown in Remillard.” 50Pet. 43. The 50Petition does not rely exclusively on the “genlock” system, rather the proposed combination relies on admitted prior art involving the RocGen card (and other known hardware). *See id.* (citing Ex. 1609 ¶ 138); Ex. 1420 ¶¶ 49, 52; Reply 46–47.

Petitioner also explains

Patent Owner suggests that a person of ordinary skill in the art at the time of the invention “would have had a bachelor’s degree in electrical or computer engineering, or computer science, or equivalent experience, and two to four years of experience relating to electronic content delivery, such as experience with cable or satellite television systems, set-top boxes, multimedia systems, or electronic program guides.” ([PO] Resp.-48, 15.) An electrical engineer with such experience would have been able to incorporate the overlay teachings from the secondary references into Young ’801. . . . Figure 6 from Young ’801 . . . shows that Young ’801 already included a program guide and program notes in an overlaying relationship.

Reply 48–49 (citing Ex.1420 ¶¶ 8, 48, 51; Ex. 1421, 48:12–49:8).

In addition, as set forth above, Petitioner persuasively explains, in reliance on the additional references, that creating partial overlays constituted a well-known operation using well-known devices and methods, employed to allow users to obtain program information without obscuring the program currently being viewed.

Regarding alleged hindsight, Patent Owner contends

Petitioner broadly concludes, without citations to any reference, that “[i]t would have been obvious to use Moro’s known

overlaying technique to overlay program schedule information, including selected portions of schedule information for a currently tuned channel and interactive-selected portions of schedule information for programs on channels different from the currently tuned channel (both scenarios taught by Young '801), over a display signal currently appearing on the tuned channel to allow a viewer to view the program information without interrupting the currently tuned and displayed program as taught by Moro.” Pet.-48, 40-41. For the other grounds in Pet.-49 and Pet.-50, Petitioner makes similar conclusory statements regarding the Reiter and Remillard combinations. Pet.-49, 38; Pet.-50, 41-42.

PO Resp. 47–48.

As Petitioner replies, these arguments mischaracterize the Petitions. Reply 44–46. As outlined above, each Petition relies on cited teachings in the references. With respect to the 48Petition, Petitioner quotes Moro for its “explicit motivation,” stating “a user can learn about other available programs ‘without interrupting’ the program he/she is currently watching, thereby ‘greatly improving the operating convenience.’” See 48Pet 39–41 (citing Ex.1403, 2:48–52, 5:31–35; quoting *id.* at 6:3–7, reproducing *id.* at Fig. 2). Petitioner also quotes “Young '801’s teaching that ‘supplemental schedule information is presented in overlays that obscure a minimum amount of useful other information.’” 48Pet. 41(quoting Ex. 1402, 4:15–18; citing Ex-1409 ¶ 139). At deposition pages cited by Patent Owner (PO Resp. 53), Mr. Wechselberger explains that one could either modify or replace certain aspects of Young '801 to obtain the overlay functionality: “I’ve basically said . . . a person of ordinary skill in the art at the time would understand that there are a number of different ways that what I’ve described -- what's described as the current video plus an overlay can be done.” See

PO Resp. 53; Ex. 2507, 39:8–16 (also testifying about known integrated circuits and the RocGen card).

Similar remarks apply to the 49Petition and 50Petition. In the 49Petition, Petitioner contends Reiter provides “explicit motivation” to modify Young ’801, asserting “Reiter teaches displaying information, such as program schedule information, in an overlay format so the viewer can continue to view a television program.” 49Pet. 37 (citing Ex. 1504, 6:29–38, Fig. 3, 155 (“overlay format”)). At the cited passage, Reiter explicitly states that in “a television overlay format. . . . the viewer may continue to view the television program he is currently watching.” Ex. 1502, 6:35–38. Petitioner contends providing such an overlay would “allow a viewer to view the program information without interrupting the currently tuned and displayed program.” 49Pet. 38. Petitioner also contends “[i]t would have been apparent that Young ’801’s program guide could be reduced in size to prevent it from obscuring most of the currently tuned and displayed program.” *Id.* at 39 (citing Ex. 1509 ¶ 126; Ex. 1502, 4:15–18). At the cited portion of Young ’801, Young ’801 states “supplemental schedule 43 information is presented in overlays that obscure a minimum amount of useful other information.” Ex. 1502, 4:15–18.

In the 50Petition, Petitioner reproduces Figure 3 of Remillard and notes “Remillard discloses overlaying interaction menus on a portion of a television broadcast.” Figure 3 depicts an “INTERACTION MENU” on the bottom of the television screen. 50Pet. 40 (citing Ex. 1605, 2:63–3:1, 5:55–61). In one of the cited portions, Remillard discloses allowing a user to display an “interaction menu over all or a portion of a television screen, as desired,” but “[t]he preferred embodiment adds the interaction menu to a bottom portion of the screen and preempts or overlays the incoming

programming in that portion of the screen displaying the interaction menu.”

Ex. 1605, 2:63–3:1.

Petitioner also relies on the statement in Young ’810 quoted above, “Young ’801’s statement that ‘supplemental schedule 43 information is presented in overlays that obscure a minimum amount of useful other information.’” 50Pet. 42–43 (quoting Ex. 1602, 4:15–18). Petitioner contends “[a] POSITA would have appreciated that overlaying a menu on a portion of a television broadcast allows the viewer to continue to view the television broadcast while interacting with the menu as explained below. *Id.* at 28 (citing Ex. 1609 ¶ 130).

Based on the foregoing, Patent Owner’s arguments do not undermine Petitioner’s persuasive showing.

4. Applicant Admitted Prior Art (“AAPA”)

Patent Owner contends Petitioner improperly relies on AAPA in the ’556 patent specification. PO Resp. 54 (citing 50Pet. 41). Patent Owner concedes the ’556 patent states that the “‘present embodiment’ may use ‘a commercially available VGA-type graphics card, such as a Rocgen card manufactured by Roctec.’” *Id.*

The ’556 patent also states “[t]he system components identified in connection with FIG. 1 can all be implemented in a preferred platform by, for example, an IBM personal computer equipped with a transmission link and a video graphics card, such as those manufactured by Roctec.” Ex. 1401, 8:40–42. It also states “a video display generator (VDG) 23 . . . in the present embodiment may be a commercially available VGA-type graphics card, such as a Rocgen card manufactured by Roctec.” *Id.* at 8:9–12.

By way of summary, with further respect to the “system components” of Figure 1, the ’556 patent states

[o]ther platforms, such as a cable converter box equipped with a microprocessor and memory, could also be used. *In any event, those of skill in the art will appreciate that the particular details of the hardware components and data storage are a function of the particular implementation of the system, and are not the subject of the present invention.*

Ex. 1401, 8:42–47 (emphasis added).

Patent Owner contends the Petition may only rely “on the basis of prior art consisting of patents or printed publications.” PO Resp. 54 (quoting 35 U.S.C. § 311(b); citing 37 C.F.R. § 42.104(b)(4)). Patent Owner also argues

the only “admission” that may be taken from the ’556 patent is the fact that a VGA-type graphics card, such as the Rocgen card by Roctec, was commercially-available at the time of invention. But Petitioner has failed to demonstrate that the specification admits that it was known or obvious to use this particular product in the context of the invention.

PO Resp. 55. Patent Owner also contends “Petitioner does not cite to a single document allegedly describing the teachings, structures, functions, or operations of the asserted AAPA” and instead “relies exclusively on the testimony of its expert.” *Id.* at 55–56 (citing Ex. 1609 ¶¶ 36, 108–110, 136–138). Patent Owner also contends Petitioner relies on “an undated, unauthenticated Rocgen user manual (Ex. 1614) untethered to the alleged admissions in the ’556 patent.” *Id.* at 56.

Contrary to Patent Owner’s arguments regarding the propriety of admissions in an *inter partes* review proceeding, our reviewing court recently held that statements in the specification are “probative on how one with ordinary skill in the art at the time of filing of the involved patent

would have read and understood the disclosure of the prior art.” *Paice v. Ford Motor*, 881 F.3d 894, 901 (Fed. Cir. 2018) (citing *PharmaStem Therapeutics, Inc. v. ViaCell, Inc.*, 491 F.3d 1342, 1362 (Fed. Cir. 2007) (“Admissions in the specification regarding the prior art are binding on the patentee for purposes of a later inquiry into obviousness.”); *In re Baxter Travenol Labs*, 952 F.2d 388, 390 (Fed. Cir. 1991) (holding extrinsic evidence, including *admissions*, may be used to explain what a reference discloses in a reexamination proceeding).²²

Regarding the alleged admission, Petitioner replies as follows:

[t]he description of the Rocgen card in column 8 of the ’556 Patent and the structure of the video display generator in Figure 1 provide sufficient detail for one skilled in the art to appreciate that the commercially available card can be used to generate a video overlay. (Ex-1420, ¶50.) Patent Owner does not even allege that the description of the Rocgen card in the ’556 Patent would not be sufficient for one skilled in the art to

²² See also *In re Nomiya*, 509 F.2d 566, 571 n.5 (CCPA 1975) (It is a “basic proposition that a statement by an applicant, whether in the application or in other papers submitted during prosecution, that certain matter is ‘prior art’ to him, is an admission that that matter is prior art for all purposes.”) (emphasis added); see also *Constant v. Advanced Micro-Devices Inc.*, 848 F.2d 1560, 1570 (Fed. Cir. 1988) (“A statement in a patent that something is in the prior art is binding on the applicant and patentee for determinations of anticipation and obviousness.”); *Riverwood Int’l Corp. v. R.A. Jones & Co.*, 324 F.3d 1346, 1354 (Fed. Cir. 2003) (“Valid prior art may be created by the admissions of the parties. . . . [A] statement by an applicant during prosecution identifying certain matter not the work of the inventor as ‘prior art’ is an admission that the matter is prior art.”) (citations omitted); *Tokyo Keiso Co., Ltd. v. SMC Corp.*, 307 Fed. Appx. 446, 451 (Fed. Cir. 2009) (quoting *Riverwood* and *Constant* for same proposition) (non-published); *In re Reuning*, 276 Fed. Appx. 983, 986 (Fed. Cir. 2008) (“Having acknowledged that certain claimed elements are taught by the prior art, Reuning cannot now defeat an obviousness rejection by asserting that the cited references fail to teach or suggest these elements.”) (non-published).

appreciate that the commercially available card can be used to generate an overlay.

Reply 51–52. As Petitioner persuasively argues, the ’556 patent “admits that the claimed system can be implemented with known parts and the implementation details are ‘not the subject of the present invention.’” *Id.* at 50 (quoting Ex. 1401, 8:37–48).

The record evidence supports Petitioner. The inventors of the ’556 specify that the invention may be practiced with a commercially available Rocgen card, and do not describe modifying the card or other known hardware in order to implement partial overlay functionality. Petitioner also contends it did not rely on the Rocgen manual. Although Mr. Wechselberger confirmed his understanding by citing to the Rocgen manual, his testimony also includes the recent history of a known class of on-screen display devices (OSDs), “including standard off-the-shelf design components in the 1970s as a result of their widespread use in teletext, videotext, closed captioning and video game applications, for example, which in most instances employed a television as the display device.” Ex. 1409 ¶ 34. These devices later evolved into integrated circuits and cards such as the Rocgen card that also correspond to the admissions about known hardware in the ’556 patent, regardless of the manual. *See* Ex. 1409 ¶ 36; Ex. 1609 ¶¶ 36, 108–110, 136–138). Mr. Wechselberger notes that in the ITC Case, Patent Owner contended that the corresponding structure for the video display generator “is a video graphics card.” Ex. 1409 ¶ 36 (citing Ex. 1413, 28). Mr. Wechselberger also outlines the functions mentioned in column 8 of the ’556 patent as functions performed by the admitted Rocgen device. *Id.*

In addition, the parties agree that the skill level here involves at least a bachelor's degree in computer science, computer engineering, electrical engineering, or the equivalent thereof, and 3–5 years of experience or familiarity with software development in the 1990–1993 time-frame, or the equivalent thereof, and some experience within the television distribution industry (broadcast, cable, or satellite), including television signal processing in consumer appliances. 48Pet. 17–18 (citing Ex. 1409 ¶ 30); PO Resp. 15 (citing Ex. 2406 ¶¶ 1–10); Tr. 75:5–17. Such a person would have been aware of commercially available hardware devices and how they operate to provide their intended overlay functionality. The record shows partial overlay functionality was well-known.

In summary, the statements in the '556 patent admit of commercially available VDG cards, and constitute evidence that skilled artisans would have known to use a commercially available card and other hardware as admitted in order to provide similar overlay functionality that at least the secondary references suggest—i.e., one of the purposes for selling the card. See Ex. 1409 ¶¶ 34–36 (discussing disclosure in patent to an ordinarily skilled artisan and citing other patents with the known hardware).

Based on the foregoing, Patent Owner's arguments do not undermine Petitioner's persuasive showing.

12. Motion to Exclude

Patent Owner moves to exclude paragraphs 8, 24, 27–30, 32 and 38 of Mr. Wechselberger's second Declaration (Exhibits 1420, 1520, and 1620) as “untimely and unfairly prejudicial” because those paragraphs are directed to “expert testimony that exceeds the permissible scope of reply.” Paper 26 (“Mot. Exc.”). Patent Owner also moves to exclude Exhibit 1422, cited by Mr. Wechselberger in paragraphs 24 and 29 of his second declaration, as

likewise “untimely.” *Id.* at 1. Petitioner opposes. Paper 28 (“Opp. Mot. Exc.”). Patent Owner replies. Paper 29 (“Rep. Opp. Mot. Exc.”)

After considering the record and arguments, we deny Patent Owner’s Motion to Exclude.

Petitioner’s showing of obviousness does not require the additional evidence provided and cited in Mr. Wechselberger’s second declaration that addresses Patent Owner’s narrow interpretation of the consecutively displayed and successive portions features recited in various forms in the challenged claims. As explained above, Petitioner relied on the page mode, at least with respect to claim 17, which recites a narrow version of consecutively displayed and successive portions in broader challenged claims.

In addition, the Petitions do not limit the showing to cursor movement within a guide, generally explaining that cursor movement to the right satisfies claim limitations and citing portions of Young ’801 that discuss overcoming cursor jumps to programs hours in advance and the page mode. *See supra* Section 11.a. So the Petition and the Reply do not change course. *See Ericsson Inc., v. Intellectual Ventures I LLC*, No. 2017-1521, slip op. at 13 (Fed. Cir. Aug. 27, 2018) (reply argument not improper when it expands on the same argument made in the petition). Rather, the Reply and Mr. Wechselberger’s second declaration, which relies on Exhibit 1422, responds to arguments made by Patent Owner in its Response attempting to interpret the consecutively displayed and successive portions in a narrow fashion and responds to other arguments Patent Owner made about modifying Young ’801. *See* Opp. Mot. Exc. 5–6, 9–11. These Response arguments about cursor movement and the consecutively displayed and successive portions limitations contradict (or at least do not coalesce with) arguments made by

Patent Owner in the ITC Case with respect to these cursor movement display features. Petitioner reasonably need not have anticipated the Response arguments to shift from Patent Owner's position in the ITC Case. *See id.* at 1–2.

Also, an artisan of ordinary skill reading Young '801 reasonably would not have interpreted Young '801's system as restricted to a single page limited to time slots ranging from 11:00 am to 12:30 pm as depicted in Figure 6 of Young '801. *See* Ex. 1420 ¶ 24 (describing Dr. Bovik's restricted view of Young '801 as unreasonable). This restricted reading of Young '801 unreasonably constrains the use of the guide to 1.5 hours, something the Petitions do not do, contrary to Patent Owner's arguments that the Reply shifts to new theories. *See* Rep. Opp. Mot. Exc. 2, 8–13. To elaborate and to address Patent Owner's arguments and Dr. Bovik's testimony, Mr. Wechselberger responds with a citation documenting well-known cursor navigation aspects of the same concept involved in spreadsheets (Ex. 1422) and elaborates about minimal program guide layout or format changes that go hand-in-hand with the Petitions' assertions of guide size reduction. *See* Opp. Mot. Exc. 9 (discussing Ex. 2406 ¶¶ 108–115; Ex. 1420 ¶¶ 36–37), 11 (noting Dr. Bovik stated in his deposition “a user would have been ‘confined to the visible screen’”) (citing Ex. 1421, 56:16–23, 108:25–109:8, 116:17–117:2; Ex. 2406 ¶¶ 51–52).

In summary, the three Petitions cite to portions of Young '801 that describe the page mode, directly rely on the page mode for a narrow related limitation, and generally advance the theory of moving a cursor across, upward, and to the right to obtain consecutively displayed and successive portions of schedule information, citing portions that describe new pages and cursor jumps. Patent Owner chose not to avail itself of the opportunity to

IPR2017-01148, IPR2017-01149, IPR2017-01150

Patent 6,418,556 B1

depose Dr. Wechselberger about his second declaration and thereafter file observations from that deposition or seek authorization to file a sur-reply. In view of these circumstances, we deny Patent Owner's Motion to Exclude.

III. CONCLUSION

For the foregoing reasons, Petitioner has shown, by a preponderance of the evidence, that the subject matter of claims 5–10, 15, 17, 18, 29, 31, 32, 34–38, and 41–48 would have been obvious over the combination of Young '801, Young '121, Strubbe, and either Moro (48Pet.), Reiter (49Pet.), or Remillard (50Pet.).

IV. ORDER

ORDERED that 5–10, 15, 17, 18, 29, 31, 32, 34–38, and 41–48 of U.S. Patent No. 6,418,556 B1 are unpatentable as a result of each trial as a separate matter, IPR2017-01148, IPR2017-01149, and IPR2017-01150;

FURTHER ORDERED that pursuant to 35 U.S.C. § 318(b), upon expiration of the time for appeal of this Final Written Decision, or the termination of any such appeal, a certificate shall issue cancelling claims in 5–10, 15, 17, 18, 29, 31, 32, 34–38, and 41–48 of U.S. Patent No. 6,418,556 B1;²³

FURTHER ORDERED that this Final Written Decision shall be entered into the record of each case, IPR2017-01148, IPR2017-01149, and IPR2017-01150;

FURTHER ORDERED that Patent Owner's Motion to Exclude is denied; and

²³ Claims 6, 7, 10, 36, and 37, are cancelled as depending from claims 1 or 5; and claims 18, 35, and 38 are cancelled as depending from claims 15 or 17.

IPR2017-01148, IPR2017-01149, IPR2017-01150

Patent 6,418,556 B1

FURTHER ORDERED that because this is a final written decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2017-01148, IPR2017-01149, IPR2017-01150
Patent 6,418,556 B1

FOR PETITIONER:

Frederic M. Meeker
Bradley C. Wright
Charles L. Miller
Craig W. Kronenthal
Scott M. Kelly
BANNER AND WITCOFF, LTD
fmeeker@bannerwitcoff.com
bwright@bannerwitcoff.com
cmiller@bannerwitcoff.com
ckronenthal@bannerwitcoff.com
skelly@bannerwitcoff.com
ComastIPRService@bannerwitcoff.com

FOR PATENT OWNER:

Mark D. Rowland
Gabrielle E. Higgins
Scott McKeown
Carolyn Redding
David Chun
Keyna Chow
Josef Schenker
ROPES & GRAY LLP
RovIPRTeam@ropesgray.com
Mark.Rowland@ropesgray.com
Gabrielle.Higgins@ropesgray.com
Scott.mckeown@ropesgray.com
Carolyn.redding@ropesgray.com
David.chun@ropesgray.com
Keyna.chow@ropesgray.com
Josef.schenker@ropesgray.com